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General Articles

A FEW NOTES ON A DISEASE IN CATTLE KNOWN AS "ACORN POISONING"

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"Acorn poisoning" is a serious disease in cattle which has, in the past, assumed serious proportions at intervals of several years. The Ministry of Agriculture and Fisheries' booklet, entitled "Some Diseases of Farm Animals," contains a short article on "Acorn Poisoning," in which it states that "in the years 1868, 1870, 1884 and 1900, which were remarkable for a large yield of acorns after a long, dry and hot summer, serious losses among young cattle occurred from outbreaks of what is known as acorn poisoning." The year 1933 can be added to that list, the disease having been very prevalent in mid-Wales, and in many other parts of the country. We have attended a total of 140 affected cattle on 57 farms, and, to our knowledge, 80 of these cattle have died.

Two distinct types of illness were encountered in Montgomeryshire:—

The first was met with in a few milch cows which were obviously suffering from impaction of the rumen as a result of eating enormous quantities of acorns. Two cows vomited large quantities of acorns, and in all these cases large quantities of unmasticated acorns were, for several days, passed in the fæces. These cases, however, were not serious, and all responded to aperient and stimulant treatment.

The other type of illness, however, is the one I wish to discuss, and which, I think, is the disease referred to in books as "Acorn Poisoning." The majority of cases of this disease were amongst young cattle aged one to two years, only a few older cattle developing it. In these cases almost all traces of acorns had disappeared from the fæces.

In all cases there is more or less loss of appetite, and later suspension of rumination. In most cases there is constipation in the early stages, followed by an offensive diarrhœa. Blood and shreds of mucous membrane are often present in the fæces, and, in severe cases, large quantities of blood and blood clots are passed. Temperature is usually normal or slightly subnormal; and respiration is normal.

The animal soon looks miserable and dejected, the nose is dirty, and the eyes are sunken. The urine is pale and is passed in large quantities. In chronic cases there is often tympany.

Treatment.—It is a debatable point whether one should treat the mild cases, or leave them untreated out on the fields. A large number of cattle were noticed to be somewhat dull and off colour, but were not considered ill enough to be treated, and they were left out in the fields without any treatment. Most of these cattle recovered, whereas many cattle which were not much worse, but which were brought indoors, became worse, and a large number died.

It is a fact that such drugs as mag. sulph., ammon. carb., nux vomica, ginger, etc., act as irritants and hasten the deaths of the patients. We had a certain amount of success with large doses of kaolin and liquid paraffin, but by far the best results were obtained with large doses of liquid paraffin followed by full doses of chlorodyne, and we feel certain that the percentage of deaths would have been very much reduced had we tried this treatment earlier.

Lesions.—We carried out *post-mortem* examinations on about 30 cattle, and, in every case, the lesions were those of gastro-enteritis. In acute cases there was intense congestion of all parts of the alimentary tract, the lesions in the abomasum being very marked. In some cases there was sloughing of the mucous membranes of the stomachs and of the bowels. In many cases there was impaction of the omasum.

Hitherto, it has been taken for granted that this disease is caused by acorns, but in the outbreak which we have recently encountered, several facts seem to suggest that some other factor is at work.

It is true that all the cases which we encountered were in cattle which had been eating acorns. But there is hardly a farm in the district in which we practice which has not a few oak trees, and practically every oak tree was loaded with acorns. It can safely be said that practically all the cattle in our district were gorging themselves with enormous quantities of acorns, and yet thousands of these cattle showed no evidence of any disease or trouble whatsoever. When walking over the fields one noticed that the bovine fæces were loaded with chewed-up acorns; but acorns had almost entirely disappeared from the alimentary tracts of cattle affected with the so-called "acorn poisoning."

* Presented to the Annual Meeting of the North Wales Division, N.V.M.A., at Rhyl, November 17th, 1933.

Two facts impressed themselves upon us. Firstly, the disease did not appear for three or four weeks after the cattle had started eating acorns, and, secondly, it ended abruptly at least a fortnight before the cattle had stopped eating acorns.

The disease first appeared following a sudden change from warm dry weather to cold wet weather, and I am going to suggest that the disease is really coccidiosis, and that the resistance of the cattle was reduced by the cold wet weather to such an extent that the disease gained the upper hand. I suggest that the tropical weather of the summer and autumn of 1933 had favoured the growth and dissemination of the coccidia.

Unfortunately we were so busy at the height of the disease that we were unable to devote much time to the packing and despatching of samples, and the disease finished so abruptly that we were unable to get many samples at the time we were most anxious to confirm our theory of coccidiosis being the disease which we had been treating as "acorn poisoning."

We did, however, submit a few samples of fæces, etc., to Dr. Hugoe Mathews, Hon. Pathologist to the Bicton, Salop, Mental Hospital, and I append a brief summary of his findings:—

"Case No. 1.—Fæces from a yearling bullock. Very numerous coccidial cysts found.

"Case No. 2.—Fæces from yearling bullock. Coccidial cysts found, but not a heavy infestation.

"Case No. 3.—Length of bowel from a two year-old bullock. Intense inflammation. Stripping of mucous membrane practically complete. Numerous petechial hæmorrhages and occasional ulcers. Curetted material and samples of intestinal contents showed heavy infestation of coccidia.

"Case No. 4.—Pieces of abomasum and small and large intestines from a yearling bullock.

"*Scrapings, etc., revealed*:—A few coccidial cysts in abomasum. No coccidial cysts in the small intestines, but the large intestine was swarming with coccidial cysts.

"Specimens from other cattle revealed much the same picture, petechial hæmorrhages, stripping of the mucosa, with coccidia, being constantly present."

Discussion.—During the discussion which followed we mentioned that a small-holder had hand-picked nearly two hundredweights of acorns and that he intended feeding them to two yearling cattle. This he did during November and December. The cattle are still well and hearty and have not at any time shown any discomfort. This small-holder informs me that he always collects acorns and feeds them to his cattle.

Discussion

The President (Mr. R. L. Lewis) said that they had hoped that Mr. T. Hughes would have opened the discussion. Since he had not then arrived he called upon Mr. W. Hughes to deputise.

Mr. Hughes thanked Mr. Jones for his paper and regretted that he could not say very much more than had already been said on the subject for he agreed with most of what Mr. Jones had told them. He had found that the condition was most frequently encountered in young cattle. He had made three *post-mortem* examinations and in each case the lesions were those of gastro-enteritis. In his experience sheep appeared to be immune—possibly, he thought, because they did not ingest sufficient acorns. Treatment was unsatisfactory. He had used ammon. carb. and linseed oil, but he did not consider either of much value. Prevention was important and he always advised turning the pigs out and gathering the acorns.

Mr. Llewelyn Jones doubted whether the condition could be attributed to coccidiosis. Was it possible for death to be due to coccidia when these were found in only small numbers? If, in every fatal case, there had been a heavy infestation, Mr. Leonard Jones' conclusion would be justified, but such was not always the case. He (Mr. Llewelyn Jones) said they must bear in mind that last summer had been an exceptionally dry one, and animals had been obliged to drink from filthy pools infested with parasites. This condition, he thought, was due to acorns rather than coccidia. His experience of treatment was unsatisfactory. If blood and mucus was being passed and if there was tympany, such cases always terminated fatally. He had used formalin, sodii. bicarb., ammon. carb. and numerous other drugs, but he did not attribute any success he had had to these agents. The last three cases he had attended had been removed at once from the park where the acorns lay, and all recovered. He had found that those cases which he had kept indoors—they were all bad cases—had died. In conclusion, he thanked Mr. Jones for his interesting paper, but he reiterated his opinion that all the deaths were not due to coccidiosis.

The President, continuing the discussion, suggested that if, as Mr. Leonard Jones believed, the condition was in reality a form of coccidiosis, then he would expect it to be more in the nature of an epidemic. His own cases, on the contrary, occurred in, say, two animals out of a herd of 40. He had encountered nine cases in all. Only one recovered, this animal receiving a large dose of ol. lini. and being permitted to remain outdoors. With regard to symptoms, the grinding of the teeth appeared to be characteristic—it was more marked than in ordinary dietetic troubles. On *post-mortem* examination he had always found effusion of blood into the stomach and bowel. The question arose—what was the nature of the poison? Was it a glucoside, or was it tannic and gallic acids? It was certainly very irritant. To account for the absence of the condition in pigs and sheep he put forward the hypothesis that pigs and sheep masticated the acorns thoroughly and the saliva helped to render the toxin inert. But cattle could easily swallow acorns whole and the fermentation occurring later in the stomach brought about the development of the toxic substance. He was surprised to hear Mr. Leonard Jones say that he found acorns in the fæces. He, the speaker, had not been able to trace any. After what he had heard he inclined to the view that the condition was in fact acorn poisoning, some toxic substance being formed during the process of digestion.

Mr. F. Booth said he had met with a number of cases of the condition under consideration. There were, he thought, one or two symptoms which were diagnostic. Amongst these, he mentioned a subnormal temperature and frequent urination, with paralysis and stupor. Another interesting feature he noted in two of his cases was that the condition only became apparent about 14 days after the animals had been turned into the park where the acorns lay. Moreover, he had noted that during the scare period some farmers removed their animals from the park and yet more cases occurred amongst these than amongst those left in the park. He regarded the condition as an infestation with coccidia, but acorns might be a predisposing factor. He had not been successful with any particular treatment. Magnesium sulphate, he had found, was fatal, and oleum lini. had not proved of much value. He had tried kaolin, since this was an accepted remedy in poisoning by glucosides.

Mr. E. P. Edwards did not agree that a case had been made out for assigning the cause to coccidia. Mr. Leonard Jones had said that the dry summer and consequent utilisation of stagnant pools had been responsible. But if this were so, would not cases occur where no acorns were accessible? And if coccidia were present together with abundant acorns would not one expect the whole herd to be affected? He would like to see an experiment carried out of feeding acorns to cattle which were known to be infested with coccidia. Curiously, he said, his experience of the condition had been in wet weather. He would like to hear Mr. Jones' explanation as to why pigs flourished and fattened on acorns. Also, had he tried rumenotomy? He had performed this in three cases and one of these recovered.

Mr. W. O. Jones spoke of a case which he had dealt with recently. The principal symptom was atony of the rumen, and after treating with tonics the animal recovered. As to the toxic principle, he suggested that the acorn might, during the process of fermentation, produce benzaldehyde, which would later become converted into hydrocyanic acid—the process which occurred in linseed poisoning. Might not the pigmentation which was seen in the bowel be due to aniline dyes produced at a later stage of this chemical process?

Mr. W. T. Rowlands asked Mr. L. Ll. Jones if he had taken control smears when examining for coccidia. Had he found coccidia present in animals which appeared healthy?

Mr. J. Cane said he had only met with two cases of the condition—one had recovered and the other died. He failed to see why sheep and pigs should be immune if acorns were the cause. He would like to know the dose of kaolin which Mr. Jones recommended.

Mr. H. Williams asked if Mr. Jones had encountered the condition in deer in parks.

Mr. J. H. Wynne called attention to the similarity in the delay in the onset of symptoms, as mentioned by Mr. Booth, between this condition and bracken poisoning.

The Reply

Mr. Leonard Jones, replying, said he was pleased that his effort had produced such an interesting discussion, and he would endeavour to answer the many points put to him.

He agreed with Mr. Hughes that there was no definite treatment for the condition. He usually gave doses of ol. lini. or paraffinum liquidum if the animal appeared fairly strong. Strong purgatives, he found, were always fatal. Chlorodyne and kaolin had proved useful—he did not know if one was superior to the other—and he believed his mortality figure was about 50 per cent. Milk, eggs, gruel, arrowroot and linseed meal had all been used, and they served a useful purpose in maintaining the strength of the animal.

In reply to Mr. Llewelyn Jones, he could say that in every case in which smears had been taken coccidia had been found to be present, and in most of these cases the animals had received aperient medicine. Mr. Lewis had said that if the condition was to be regarded as a form of coccidiosis then one would expect it to be somewhat epidemic. This was, in fact, the case. All outbreaks occurred within three weeks, and in one farm seven cattle out of eight died.

Mr. Edwards, too, had expressed the view that if there were both coccidia and acorns present in the pasture all the cattle would be likely to be affected, but he (Mr. Jones) had found the fæces of grazing cattle full of chewed acorns. In the affected cattle the acorns had probably been eliminated from the bowel before he was called in. The cases of recovery after rumenotomy he thought were likely to be merely cases of mechanical impaction.

The essayist agreed with Mr. Booth that magnesium sulphate was fatal. Kaolin, he understood, formed a protective lining to the alimentary tract. Mr. W. O. Jones had suggested that the toxic agent might be hydrocyanic acid; but if this were the case, would it not cause nervous symptoms, or sudden death rather than gastro-enteritis, as was constantly found?

Mr. Rowlands had asked about control smears. At the time he, the essayist, had just sent 24 samples of fæces from healthy cattle for examination. It would be interesting to know the result. Mr. Wynne had compared the symptoms with those of bracken poisoning, but he (Mr. Jones) had never seen a case of poisoning due to eating green bracken.

He trusted that his replies would be found helpful, and he again thanked the members for their patient hearing.

SHEEP SCAB CONTROL IN WESTMORLAND

The Westmorland County Council, at a meeting held on March 16th, approved the following recommendations of the Agricultural Committee, arising out of the consideration of the position in regard to sheep scab:—

"A full-time veterinary surgeon be appointed for the County of Westmorland at a commencing salary of £400 a year, rising by four yearly increments of £25 to £500.

"All the counties in the North (except Cumberland and Durham) having agreed to appoint patrol shepherds, Westmorland should appoint one to be stationed at Murton or Dufton."

Mr. Crosby said it was clear that the Ministry wanted to eliminate sheep scab and would be rigid in their attitude; the cheapest way to deal with the situation was to appoint the veterinary surgeon and the shepherd.

Mr. Allen said the Westmorland Pennines had been referred to as the black spot of England. Scab had been practically stamped out in Scotland. The Cumberland Pennines were likewise clear, and Cumberland fell farmers were to erect a fence three miles long to prevent the Cumberland sheep coming into contact with sheep on the Westmorland Pennines. If the County Council did not act there would probably be a double-dipping order for the whole county to safeguard other counties. Every double dipping cost £70 to £80 on the big sheep farms.

SOME POULTRY DISEASES*

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I thank you for your kind invitation to speak to you to-day on poultry diseases. Last year I visited several of the branches of the National Veterinary Medical Association and spoke on this subject, when, in many centres, I found that the members were keenly interested in this branch of our work.

In those discussions the diseases of bacillary white diarrhœa, fowl pox and tuberculosis were considered. To-day I do not propose to cover in detail those diseases, but will endeavour to have a little time at the end of the meeting should any members wish them to be discussed.

Your local poultry industry is closely concerned with the rearing of turkeys, geese and ducks. I would like, therefore, to deal at some length with the diseases which affect these birds.

Fowl Cholera

Last year you experienced here one of the most serious outbreaks of fowl cholera this country has ever known.

The causal organism is a member of the septicæmia hæmorrhagica group known as the *Bacillus avisepticus* or *Pasteurella avium*. It is a small, rod-shaped, non-motile organism with rounded extremities which can be recovered from the heart blood. Stained with Giemsa or Leishman the bi-polar arrangement of the protoplasm is well demonstrated.

The disease attacks fowls, geese, ducks, turkeys, pigeons, pheasants, partridges and many of the wild birds. The disease usually occurs as an acute infection but a chronic condition is also known.

The two serious outbreaks in this country in 1923 and 1933 have demonstrated the acute form of the disease.

In this form the period of incubation varies from 14 to 72 hours, with a very heavy death rate. When death occurs very quickly after the onset of the disease usually no symptoms are noticed, the birds being found dead.

In the less acute cases great thirst is generally noticed and the crop is distended with water. The appetite is lost, the bird shows great depression, standing with the head lowered. Diarrhœa is an almost constant symptom, the droppings coloured yellow or green with an offensive odour. The temperature of the bird may reach 112° F., and the mortality 90 to 100 per cent.

Towards the termination of an outbreak of this disease in a flock, a chronic form may develop and some of these later affected birds may recover and become carriers[1]. These birds are dull and show an intermittent or persistent diarrhœa.

In 1914 Seddon[2] in Australia described a condition of œdema of the wattles of the fowl. Experiments carried out showed the cause to be a pasteurella apparently identical with that causing fowl cholera.

Warrack and Dalling[3] reported a similar condition in 1932 in England.

Post-mortem Findings.—The skin of the breast and abdomen is frequently very red and the comb dark red to purple.

The examination of the visceral organs reveals a marked congestion and the mucous membrane of the intestines, particularly of the duodenum, shows hæmorrhagic areas. Punctiform hæmorrhages of the heart and inner surface of the sternum are frequently found. The lungs may be consolidated and a serous exudate present in the air sacs. Pin-point areas of necrosis may be seen in the liver.

Diagnosis.—The diagnosis of fowl cholera naturally cannot rely upon finding the bipolar organism in a carcass. It is essential that cultures be prepared from the tissues, preferably the bone marrow, and the organism recovered inoculated into a bird. When death follows in 17 to 36 hours and an organism with similar characteristics recovered from the experimental animal, fowl cholera can be diagnosed.

Treatment.—All sick birds should be killed and the carcasses disposed of in an efficient manner. A protective serum is used in some countries, but here it has not given satisfaction.

Origin of Outbreaks.—Probably both the serious outbreaks that have occurred in this country have been caused by the importation of affected stock from the Continent. On arrival at their destination here many of the birds may show symptoms.

From time to time cases of fowl cholera have been diagnosed on farms here where no contact with imported birds could be traced. In these outbreaks the organism has usually been found to have a low degree of virulence causing only a small death rate.

Preventive Measures.—To prevent the introduction of infectious and contagious diseases into a flock, all purchased stock and birds returned from trials or shows should be isolated for a period of 14 to 21 days. By these means, should disease occur in the birds, there should be no difficulty in confining the outbreak to the isolation premises. It is an unwise procedure to permit crates, etc., to be brought on to one's premises, and foodstuffs, etc., should be purchased in new, non-returnable bags. After use all crates should be disinfected. If disease occurs all the affected and suspected stock should

* Paper presented to the Fifty-eighth Annual General Meeting of the Eastern Counties Division, N.V.M.A., at Norwich, February 9th, 1934.

be killed and the carcasses burned. The apparently healthy stock should be transferred to clean quarters and the contaminated accommodation thoroughly disinfected.

If it is impracticable to allow one person to attend the isolated flock it should be arranged that the healthy stock receive attention in the first instance. Later the isolated group can be visited and, on leaving, the attendant should thoroughly disinfect hands, boots, clothing and any utensils that have been used, in an efficient manner.

The accommodation used by the affected birds should be very thoroughly disinfected. The interior of the houses, the food and water troughs and all utensils should be sprayed with a 5 per cent. solution of a standard cresol in water, and the premises closed during a period of 24 hours.

The interior of the house should be scraped and all litter burned. Follow by scrubbing with a 10 per cent. solution of common washing soda in hot water, allow to dry and finally spray with a 5 per cent. solution of cresol as recommended for the first spray.

The interior of the house should be exposed to the action of the sun and air as much as possible. Any contaminated land should be treated with two tons to the acre of freshly ground quicklime and the ground ploughed.

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Infectious Entero-Hepatitis or "Blackhead" of Turkeys.

Blackhead is an infectious disease of turkeys and fowls characterised by the formation of round yellowish-green necrotic areas in the liver and a thickening of the walls of the cæca.

Poults are particularly susceptible during the first few months but the older birds may contract the infection at any age. The ordinary fowl is susceptible to a much less degree, but these birds may act as "carriers" and distributors of the infection.

Causal Agent.—This is generally accepted to be the protozoan parasite *Amœba meleagridis* which was described by Smith[4]. Further investigation should be carried out in order to establish the specific etiology of this disease.

Incubation Period.—This varies from ten days to four weeks.

Source of Infection.—The principal source of infection is the land contaminated by the droppings of infected birds. Birds that have recovered from an attack of the infection, although apparently in good condition, may act as "carriers." The causal agent excreted with the droppings will contaminate the ground and give rise to a further outbreak of the disease. The parasites multiply rapidly in the intestine and are passed out in enormous numbers in the droppings in the encysted or resistant stage. If these forms are not exposed to prolonged drying or the direct rays of the sun, they are probably capable of producing infection for a period of one to two years. Earthworms are considered to act as mechanical carriers of the cysts.

Several workers have found that the larvæ of *Heterakis papillosa,* the common cæcal worm of fowls and turkeys, appear to play a part in the infection with *Amœba meleagridis.* Probably the larvæ of this worm affect the mucous membrane of the cæcal wall and facilitate the entrance of the protozoan parasite. From the local site of entry it passes in the blood stream to the liver where the typical lesions are found.

It is inadvisable to run turkeys and fowls together, due to the association of this disease with these birds and the possibility of the ordinary fowl acting as a carrier of the infection.

Symptoms.—Poults show less resistance than the older birds and the symptoms may appear within a month after exposure.

It is noticed that the affected poults fail through weakness to keep pace with the healthy stock when moving about.

The affected birds show lack of vigour, progressive emaciation, small appetite, ruffled feathers, the wings droop and the droppings are soft and of a yellow to brown colour.

Post-mortem findings.—The lesions are found only in the liver and intestine.

The lesions in the liver are very characteristic. The organ is usually enlarged and congested and shows rounded areas, isolated or even coalescent, of a yellow to green colour. These necrotic areas pass more or less deeply into the structure of the liver, and the outer surface may be slightly depressed below the level of the capsule of the liver. They are not found raised from the surface of the liver tissue.

The cæcum is the usual site of lesions in the intestine. One or both of these organs may be affected. The wall of the cæca may be greatly thickened and covered with a grey to brown cheesy exudate which is difficult to remove. From the mucous membrane to the serous coat all the layers of tissue may be affected and perforation to the peritoneal cavity may occur, causing peritonitis and adhesions to the surrounding portions of the intestines.

Diagnosis.—The characteristic lesions on the liver are diagnostic of the condition.

Treatment.—During recent years very many arsenical preparations have been used for experimental purposes with variable results. Further work of a controlled nature is under way and the results are awaited with great interest.

Prevention.—Experience has shown that turkeys placed on infected ground invariably contract the disease, which in some areas has prevented the rearing of these birds. Land which is known to be contaminated should be treated with two tons of freshly ground quick-lime to the

acre, ploughed and left without turkeys or poultry for a period of two years.

The best method of establishing a flock of turkeys is to purchase eggs from a reliable source and hatch by means of the incubator. Keep the young poults on a special rearing ground for a period of months and then remove from this ground, which should be twice limed before the next breeding season.

Recently many persons have tried the intensive system of housing turkeys. Throughout their lifetime these birds are not allowed on the ground. The results in many cases have been very satisfactory.

Disinfection.—The system of disinfection for the houses and runs should be carried out as detailed under fowl cholera.

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Two diseases, fowl pox and bacillary white diarrhœa, which are commonly found in fowls, also affect turkeys.

Fowl pox in Turkeys.

The causal agent in fowl pox is a filter-passing virus with an incubation period of 3-12 days.

Three clinical forms may be recognised as in the fowl:—

(1) Wart-like nodules on the featherless parts of the head.
(2) Adherent, yellow, cheesy membranes in the mouth.
(3) A watery or muco-purulent discharge from the eyes or nose. One of these lesions, or any combination of them, may be present in the same bird.

The yellow to brown wart-like growths are found on the featherless parts of the skin of the head. They are first noticed as small nodules and gradually increase in size, coalesce and form large masses.

When the bird is affected with mouth lesions, dulness, loss of appetite, sneezing and an occasional hard cough will be noted. Examination of the mouth parts reveals false membranes on the mucous membrane. These membranes consist of a grey to yellow exudate firmly adherent to the underlying tissues. When they are removed with the aid of a scalpel an inflamed, raw surface is disclosed which is quickly re-covered by a new deposit. This deposit may be so large that the mouth cannot be completely closed or food taken. A cheesy exudate may accumulate in the trachea, and death from suffocation occur. When these serious mouth lesions are seen, diarrhœa and emaciation occur due to the absorption of toxic products and death takes place in three to four weeks. Infection, as a rule, is gained by contact with an infected bird but contaminated ground is capable of setting up infection. The dry exudate found on the skin of the bird and the deposit on the mucous membrane of the mouth contain the virus, and when disseminated on the land obviously may be picked up by a susceptible bird.

A severe attack produces a solid immunity whilst a mild attack gives a partial protection. The factors which influence the severity of the outbreak and the mortality are the amount of infection present, the virulence of the virus, adverse climatic conditions and unhygienic accommodation.

The treatment of birds affected with fowl pox, a contagious disease, is not advisable. The introduction of the disease on to a farm can be prevented by the method of isolation described for all purchased and returned stock. Further, one has in this disease the additional advantage of the use of fowl pox vaccine, the value of which in poultry is now well known.

This vaccine can be used with equally efficient results in turkeys.

Bacillary White Diarrhœa in Turkeys.

Until a few years ago it was not known that turkeys were susceptible to *B. pullorum* infection. The causal organism has been isolated from these birds both in this country and abroad.

It is therefore unwise to place in an incubator turkey eggs along with the eggs from fowls which have not given a negative reaction to the bacillary white diarrhœa agglutination test. The risk of infection is too great after one egg has hatched in the incubator.

The introduction of the disease, source of infection, diagnosis, *post-mortem* appearances, etc., are the same in the turkey as enumerated for the fowl in my previous paper.[5]

The carrier birds can be detected by the agglutination test as carried out with the blood of the fowl. By the removal of the carriers from the flock and adequate disinfection it is possible to ensure that the birds are free from *B. pullorum* infection.

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Salmonella Infection in Ducklings.

Many persons at home and abroad have investigated this infection.

Our own findings are that an abnormally high death rate is noted in the five to ten days old ducklings. The death rate usually continues and a very large percentage of the hatch die.

The *post-mortem* examination reveals no constant finding. Cultures made from the bone marrow or liver reveal the presence of a growth which further examination shows to be *B. enteritidis gærtner* or *ærtrycke*. In our work *B. ærtrycke* has been the more common causal agent.

The farm which provided us with the largest number of specimens was situated in the heart of the country. It was a small duck and poultry farm; no other animals were kept on the premises. The houses for the ducks were grossly

infested with rats. No rat virus had been used on the premises as an aid to exterminate the vermin. A large number of these ducklings were obtained and examination revealed a fair percentage of re-actors. It was possible to reveal, with the aid of the agglutination test, that these birds were positive reactors to *B. ærtrycke*. Many of the ducks were retained and eggs from this stock examined, and *B. ærtrycke* recovered from over 20 of these eggs.

Attempts to clear a flock of this infection require to be pursued by means of the agglutination test: all reactors to be removed from the flock, the healthy stock to be transferred to clean quarters and the contaminated houses and ground disinfected and thoroughly cleaned.

The carrier adult ducks show no symptoms of the infection and the only method of detection is by means of the agglutination test.

It is necessary to remember in this infection that we are dealing with organisms which are pathogenic for man. Both at home and abroad several cases of infection in human beings have been recorded where it is presumed that the infection was obtained by eating infected duck eggs in a raw or insufficiently cooked condition.

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Newcastle Disease

An outbreak of disease occurred in 1926 on a poultry farm near Newcastle-on-Tyne. Investigation of the condition by Doyle[6] showed it to be a previously unrecorded disease due to a filter passing virus. The condition was named Newcastle disease. Since that time outbreaks have occurred in Somerset, Staffordshire and Hertfordshire.

The average period of incubation in birds infected by contact is five days.

The affected birds are noticed to be off their food; they stand in the houses or runs in a crouching position; the legs and wings may become paralysed; the eyes are half closed and there is an increase in the respirations. The bird is noticed to drink frequently, the temperature is high, the crop distended with a greyish fluid. The respiratory system shows more characteristic symptoms. There is a long, gasping inhalation through the half-opened mouth, accompanied by a gurgling sound; a frothy exudate hangs in a bead from the point of the beak and a thick mucous discharge from the nostrils may be found. In artificially infected birds death usually occurs six to eight days after inoculation.

It is an acute, febrile, infectious, contagious disease with a mortality approaching 100 per cent., and few birds recover.

Fowls and pigeons are highly susceptible but ducks do not appear to be affected naturally.

There is no known method of treatment for this condition.

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Discussion

Mr. P. R. Turner thanked Mr. Dobson for his informative address and mentioned that recently he had been asked to apply the tuberculin test to pigeons before their export to South Africa. If pigeons had a wattle, was that where the test should be made? Was there any means of testing an egg for *Bacillus pullorum*?

Mr. Dobson replied: "Regarding export to South Africa, there is a clause by which ducks and other fowls have to be tested. The duck has no wattle—the part usually employed in testing fowls and giving remarkable and reliable results. For the duck we have to try the web of the foot and the web of the wing, but with indifferent results. With a pigeon there is a small piece of wattle, very tense, which should give reaction, but I have never tested a pigeon. Tuberculosis is rarely found in ducks and pigeons. As regards an infected egg you could detect by means of a culture made from it in a test for *Bacillus pullorum*."

Captain W. Waters raised the question of fowl paralysis. "In my locality," he said, "that is a disease to-day that is causing more loss of poultry than all other diseases put together. Farmers tell me their fowls are literally dying by thousands from fowl paralysis. A certain laboratory has been flooding the neighbourhood with literature that they can diagnose it by the agglutination test and give a remedy. Although this laboratory advertises its other products in *The Veterinary Record*, I have never seen any reference to one for fowl paralysis. Can it be diagnosed by a smear as suggested and would inoculation do any good?"

Mr. Dobson: "Taking fowl paralysis in a broad sense; the lay world use that phrase for more conditions than one is legally entitled to do. The condition known to the world as fowl paralysis is that of neurolymphomatosis. We get a large number of live birds for examination. These, on *post-mortem* examination, often do not produce lesions suggestive of the so-called condition of neurolymphomatosis, but coccidiosis or worm. A post-coccidial infection in paralysis is loosely and generally referred to as fowl paralysis. The farmer merely says the bird is paralysed, whereas a large percentage of these cases have nothing to do with the real fowl paralysis. You say you have a large number of infected birds in your area. It would be well to have some of them examined and get to know exactly what is the condition on *post-mortem* examination. Regarding treatment and diagnosis recommended

in the Press, in various poultry papers, I can only say that we ourselves have tried with very large numbers of birds to evolve, by blood films, some system by which we could diagnose the presence of fowl paralysis, and we have not had from blood films any guide to help us. Regarding the treatment, I cannot say anything because we have not tried it. Before one does try a treatment I think one should be quite sure of the cause. You cannot treat a condition with a serum or a vaccine unless you know the cause of the disease, and at present throughout the world there is no one who can say they know what is the cause of neurolymphomatosis.

A Member referred to fowl cholera, and asked: "If ninety per cent. of cases die, what would happen to the other ten? Are they likely to become carriers?"

Mr. Dobson: "In the acute form it is usual to find a hundred per cent. mortality, or nearly so. Some may recover, and many workers find that the birds which live would be carriers."

Mr. W. H. Wortley asked what advice the essayist would offer a client about true fowl paralysis? He had a client who wanted to know whether to kill his birds and if he could eat the apparently healthy ones. How long was the ground likely to remain infected?

Mr. Dobson: "If a laboratory diagnosed fowl paralysis the owner should get to know the origin of every bird in the flock. On investigation we often find a farmer has had a successful time with his flock and has then introduced blood from another source, with the result that infection has followed. The symptoms have been shown in the offspring. We do not know how the infection is passed, whether it lies on the land or not."

Mr. Wortley said that his client had about forty birds.

Mr. Dobson: "With a small number like that you have not the economic factor to consider. He should slaughter them all, clean the land, treating it with lime, and rest it, and get another stock from a clean, well-recorded flock."

Mr. Standley, sen., asked whether fowls should be kept away from a herd of cattle from which an attempt was being made to eradicate tuberculosis.

Mr. Dobson replied that it was a bad practice to allow poultry on a farm where such an attempt was being made. Infection was possible.

EDINBURGH UNIVERSITY VETERINARY COURSES

At a recent meeting of the Court of the University of Edinburgh it was resolved, on the recommendation of the Senatus, that the subject of personal hygiene should be deleted from Part II of the examination for the Diploma in Tropical Veterinary Medicine; and that instead a class examination in that subject should be held at the end of Part I of the Diploma course.

On the recommendation of the Senatus, it was agreed that the course of mycology for the Degree of B.Sc. in veterinary science, at present held at 2.30 on Wednesdays in the summer term, should be extended to 12-14 meetings, half in the spring and half in the summer term, of the second year of the degree curriculum; and that this arrangement should come into force in spring term 1935, no meeting of the class to be held in summer term, 1934.

Translation

PROGNOSTIC SIGNS IN EQUINE COLIC*

by

Dr. PAUL BEHN

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The treatment of colic in the horse constitutes a subject for which veterinary help has always been sought, and, except in slight attacks, it remains so even to-day, despite the facts that the larger farmers now often possess a hypodermic syringe and stock a few doses of arecolin, and that the present plight of agriculture, moreover, compels them to curtail their expenditure on veterinary fees to a minimum.

Unfortunately, there are some veterinary surgeons to-day who do not trouble to do anything when they are called in to a case of colic beyond giving the animal an injection of arecolin and administering the inevitable colic ball and whose further therapeutic resources are exhausted when they have dosed the animal with caffein or morphia. Yet, nothing is more calculated to engender confidence in the ability of a veterinary surgeon than when he is seen, in his methods of examination and treatment of cases of colic in horses, to pay regard to the essentials underlying clinical investigation as they have been revealed by recent advances in knowledge upon this subject. It may be affirmed that it will be only if the practitioner takes some pains to equip himself with this class of knowledge that he will retain in future the subject of colic treatment within his sphere of activities. I do not wish to stray too far from the subject of my address, but I would like, nevertheless, at the outset to lend emphatic support to the view which was propounded by Professor Dr. Reinhardt, of Leipzig, during his discourses upon modern therapeutic substances at the post-graduate classes attended by the veterinary surgeons of Mecklenburg in 1928, that arecolin ought to be employed no longer in the treatment of horses showing symptoms of colic. The reason for discontinuing its employment is that it has now been surpassed in its efficacy by a better remedy, known as *lentin*,* which neither has a disturbing effect upon the heart nor causes the animal to remain in a depressed state for several days after its use. Mention may also be made of the several barium preparations that are now available;

* From an Address delivered in December, 1930, before the Association of Veterinary Surgeons in Mecklenburg. Translated from *Berliner tierärztliche Wochenschrift*, 1933, 49, 33-35.

the selection of one of them for his own use by the practitioner is a matter of subsidiary importance; these preparations have certain merits of their own, insomuch as they can only be administered intravenously and are therefore safeguarded to this extent from the likelihood of misuse by laymen. What veterinary surgeon has not encountered cases of rupture, of the stomach or intestines, following upon the thoughtless administration of arecolin in cases of colic by the animal owner? Druggists usually sell this remedy to the owner in doses of 0·1 gram—a dose which capable of producing the above accidents. I regard the stomach tube, which is passed through the nose down the gullet to the stomach, as an indispensable instrument in the treatment of colic. This tube makes it possible, after it has been passed into the stomach, to administer to horses in grave distress quite harmless medicines in correctly estimated dosage without having recourse to methods of restraint and further exciting the animal; and by allowing gases to escape through it from the stomach it affords relief from pain. Skill in the manipulation of this instrument never fails to create a favourable impression upon the mind of every layman.

In the usual violent progress of an attack of colic in the horse, it is of great importance to arrive quickly at an accurate diagnosis so that appropriate treatment can be undertaken. Likewise, it is important to decide upon a precise prognosis so that, if need be, in the event of an anticipated unfavourable outcome, the carcass of the animal can be salvaged by timely slaughter and be made to yield in this way the most remunerative return possible to the owner. Also correct prognosis in colic—with good reason—bespeaks more implicit faith in the ability of the veterinary surgeon called in to undertake treatment. Finally, the animal, too, derives the advantage that we are in a position to devise measures to shorten or alleviate its sufferings. The following statements based upon my experiences may serve to indicate the relevant prognostic signs.

I will commence with the symptoms which can be detected by external examination and are of value in prognosis; I assign to these symptoms so much more importance because sometimes rectal examination cannot be undertaken for special reasons; these may be, for example, viciousness on the part of the horse, inability of the veterinary surgeon to find room for his arm within the rectal cavity of foals or very small horses, the likelihood of an elderly veterinary surgeon breaking his arm if the horse should cast itself down suddenly, and the unsuitability of the place, such as a public thoroughfare, for undertaking the examination.

From the standpoint of prognosis, paramount importance is attached to the relationship between the pulse rate and the body temperature. In assessing the gravity of an attack of colic, decisive prognostic significance is not to be assigned to the body temperature and the colour of the mucous membranes as independent symptoms. The criterion for estimating an attack is to be found in the relationship which exists between the body temperature and the pulse, both as regards its rate and quality. A prognosis is given frequently which is far too favourable when it is based upon the finding of a temperature that is not abnormal and an appearance of the mucous membranes, showing that they are not congested. When I am called in to examine a case of colic I am thus prepared to find a slight rise in temperature, to 100·1—102·2°F. (38—39°C.), and a small increase in the pulse rate, to 52—60 beats a minute. This slight deviation from the normal would be caused by the excitement, restlessness, and pain, and it need not be regarded by itself at this stage as an unfavourable sign. Colics which are classed as spasmodic, zymotic, and flatulent and colic which is caused by acute impaction of the stomach are associated with such slight increases in body temperature and pulse rate. If the temperature and pulse then remain unchanged and the animal is fairly quiet in its behaviour we may feel assured that the case is one of constipation and that the prospects of recovery are generally favourable, except when the condition is one of cæcal constipation, in which event the outcome, especially in aged horses, remains doubtful. Impactions of the colon and cæcum can be differentiated readily by rectal examination and by the previous history of the case. With impaction of the colon, the owner nearly always declares that the horse has attempted frequently to micturate but that

* *Lentin* (Merck), about the actions and uses of which there is a good deal in the recent German literature (*see* Haltenhoff, 1934, *Berlin. tierärztl. Wschr., 50,* 17) is a synthetic drug, said to be a choline derivative (carbaminoyl-choline hydrochloride), which produces after subcutaneous injection, as the result of excitation of the parasympathetic nervous system, a very marked increase in the secretory activity of the salivary, gastric and intestinal glands, together with increased peristalsis; the rhythm is, however, not accelerated beyond the normal rate. Compared with arecolin, it is claimed to cause more abundant glandular secretion, to have a more lasting and sustained action upon the bowels, and to be less drastic in its effects. It is also indicated for use in catarrhal affections of the uterus, which demand vigorous contraction of this organ. It is not to be confused with another synthetic drug, metadiaminobenzene hydrochloride, to which the name *lentin* had been given previously and which was recommended in the treatment of acute diarrhœas in the human subject.

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it has succeeded only in passing small quantities of urine with each attempt. Hence, to the lay mind the animal is suffering from an attack of colic which is caused by bladder trouble; whereas in truth, the bladder is stimulated to contract by the distended pelvic flexure of the colon which is resting heavily upon it.

The clinical picture changes, however, to assume an unfavourable aspect, as soon as there is found to be a disparity between the temperature and the pulse rate; in other words, as soon as the rise in temperature does not keep pace with the increased pulse rate. It can then be presumed with a fair degree of certainty that there exists a volvulus or severe torsion of the intestine. These two conditions account for by far the largest number of deaths in horses affected with colic. They are accompanied with considerable loss of blood from the general circulation. The vast quantity of blood which is withdrawn from the circulation can be readily adjudged on *post-mortem* examination, when the degree of hæmorrhage into the intestinal wall and ultimately into the lumen of the intestine is ascertained in cases of displacement of the colon, thrombosis affecting the blood vessels which supply large portions of intestine, or volvulus. This hæmorrhage results from the circumstance that in the process of intestinal strangulation the thin-walled veins first become compressed while, on the other hand, for some time afterwards blood can pass through the thick-walled arteries which supply the loop of intestine that is implicated. Hence, there first occurs an intense congestion of blood within the affected bowels which is brought about by the enormous distension of the blood vessels. Then follows soon afterwards—accentuated by the diseased condition of the bowels, with their damaged blood vessels—a massive escape of blood into the tissues and later to the surface of the intestinal wall. When embolism occurs in one of the larger arteries supplying a loop of intestine, an intense hæmorrhagic infiltration, with similar appearances in the bowel to those described above, will be produced on account of the changes that take place in the collateral branches of the thrombosed vessel when they are called upon to supply the territory in which arterial pressure has been suppressed. Thus intense blood extravasation, which is always to be found in severe cases, necessarily induces a pale, anæmic appearance in the palpebral conjunctiva, and a fall in body temperature; this is reflected especially by the coldness of the nose and extremities. Concurrently, the pulse and respiration are accelerated in an attempt to satisfy the oxygen hunger of the tissues in face of the marked decrease in the number of red blood cells. An increased rate of breathing may, however, be observed also to have a purely mechanical origin as when there is pressure exerted upon the diaphragm in flatulent colic. And so, leaving out of consideration the respiration, the disparity between body temperature and the pulse rate persists for a long time in the serious colics as an important and invaluable sign from the standpoint of prognosis. Temperatures falling a little below the normal [normal = 99·5—100·4°F. in adults, Marek] *i.e.*, to 97·7—99·5°F., coincident with a pulse rate of between 70 and 120 [normal = 28—40, usually 34—40, Marek] are by no means rare observations in cases of this kind. If such symptoms of a marked blood extravasation are conspicuous, the recovery of the animal need not be regarded as possible and slaughter ought to be recommended before the formation of toxins within the body has become so far advanced that, with gradually failing heart action, the animal succumbs, as it will do naturally in a few hours. If in such cases emergency slaughter is delayed until a late stage of the disease the animal does not bleed well and the keeping qualities of the flesh are very much impaired. As a rule, shortly before the fatal termination there is a rapid rise in temperature; this is well known to the layman to occur; this rise in temperature, however, does not exhibit any correlation with the greatly accelerated pulse rate at this stage. Thus, in one case which came under my observation the animal shortly before death was found to have 120 heart beats a minute and a fluttering pulse but the temperature was only 100·8°F.

That vomiting is to be regarded as an unfavourable symptom in the horse is now generally recognised.

Prognosis also becomes worse in cases of flatulent colic in which the accumulation of gas in the intestines causes a distension to take place in the abdominal wall at sites other than where it is most prominent usually, namely, high up on the right side of the belly, corresponding with the hollow of the flank. Unfavourable signs are the location of the site of maximum distension a few hands-breadth lower down or on the left side of the abdomen, or, when an exploratory puncture has been made, some dark red, laked blood rushes out of the cannula or blood-stained intestinal contents trickle away; these are all signs pointing to the existence of torsion or strangulation.

The behaviour of the horse also naturally attracts notice in colic: but it may often readily delude the observer, for in cases of stomach impaction and flatulent colic horses often disport themselves with as much frenzy as in volvulus and other serious displacements (invagination, intussusception) of the intestine. In this connection, the use of narcotics can supply important information. I have found that for this purpose the newer opium deriva-

tives,* namely, *pantopon* (at the rate of 0·4-0·45 gram dissolved in 10 c.c.) and *nealpon* at the rate of 0·5-0·6 gram dissolved in 10 c.c.) are of particularly high value. Beside their action as anti-spasmodics and sedatives they have also an important prognostic utility in view of their effects upon the animal. Recently, I have used *nealpon* only for the reason that it is as efficacious as and cheaper than *pantopon*. I have now completely abandoned the use of *morphia* in large animal practice because of the effect it frequently has of inducing an undesirable preliminary stage of excitement; I have sometimes also observed after its use signs of impending respiratory paralysis.

Pantopon and *nealpon* have a marked sedative action in all painful conditions affecting the intestines. Colicky horses that before injection show great restlessness quieten down usually within a quarter of an hour after a dose of *nealpon*, to such an extent that they either stand quietly with downcast head or else lie down quietly with their head upon the ground or even suddenly show a return of appetite and nibble hay put before them. If this action is not produced by the drugs, the prognosis changes for the worse. In cases of intestinal volvulus and torsion and thrombosis of the mesenteric arteries these drugs usually fail in their action completely; as to what is the cause of this failure, I am unable to decide—perhaps it may be attributed to the peritonitis which sets in rapidly in these conditions or the action of the toxins which escape from the damaged intestinal wall upon the brain centres and which may cancel out the sedative action of *pantopon* and *nealpon*.

The findings to be made by manual examination *per rectum* are often of such importance that it is unnecessary in this place to dwell upon them particularly, especially as all the information that is relevant can be readily referred to in the text-books. I would like to restrict myself in this regard to saying this much upon the rectal contents and the conclusions that may be derived from their examination, assuming that enemata have not been administered beforehand, which would otherwise blur the clinical picture a good deal. If the cavity of the rectum is distended with fairly solid fæcal material, which has to be removed somewhat laboriously by hand, a favourable sign is provided so far as the further progress of the disease is concerned. If, on the other hand, the fæcal material is found to be small in quantity, or none can be found, or if it is present in scanty semi-solid masses, the prognosis becomes unfavourable. The explanation of these differences is to be found in the circumstance that the intestinal wall responds to sudden derangement caused by paralysis or strangulation of a loop in the first place by increased peristaltic movements; these result in the rapid evacuation of all ingesta, which are passed on into the rectum. The greater the degree of excitation to the nervous mechanism of the intestine, the more rapid is the peristaltic action. For this reason the ingesta are not inspissated sufficiently before they reach the rectum and in the case of volvulus of the small intestine the rectal contents may be semi-fluid. The condition of these contents is only to be taken into account in prognosis, however, in conjunction with the other symptoms displayed.

I may note here again that one cannot draw conclusions from the state of the body temperature if an enema has been given or a rectal examination carried out during a considerable interval before readings are made of the rectal temperature.

The insertion of the stomach tube must necessarily be undertaken before any narcotics or sedatives that have been administered have time to exert their action. Otherwise, the deglutition reflexes are weak or abolished and much difficulty may be experienced in passing the tube down the gullet. For attachment to the stomach tube when it is to be used for the administration of fluids I recommend an india-rubber irrigator of about two quarts' capacity (such as is sold by Bengen); this is very stable, convenient to use, and can be easily suspended aloft on the prongs of a hay-fork. I also consider exploratory puncture through the abdominal wall, as already mentioned, to be a safe proceeding. I have performed it very frequently, especially during the late War, in Macedonia, where cases of flatulent colic brought on by almost exclusive feeding on maize were of daily occurrence. I smear the trocar and cannula as well as the site of puncture with pure oil, preferably carbolic oil, or oil of camphor, or, in emergency, with a bland ointment or lard to keep down contamination.

I will now touch very quickly upon the treatment of volvulus and displacement (intussusception) of the intestine and thrombosis of the mesenteric artery. In this class of case,

* *Pantopon* is a preparation containing the opium alkaloids, as hydrochlorides, in the same proportion as they are found in opium (50 per cent. morphia and about 40 per cent. subsidiary alkaloids), but in five times higher concentration. It was orginally manufactured under a patent, which has now expired (1932). It is a yellowish-brown, bitter, odourless powder, soluble in water (1 in 15). For the human subject, the maximum single dose is 0·03 gram and the maximum daily dose 0·1 gram; it is claimed to have the advantage that it does not induce vomiting after subcutaneus injection and it acts quickly. *Nealpon, ilsopon,* and *alcopon* are preparations which have been devised on the same lines, (*see* Klemperer and Rost, 1929, *Arzneiverordnungslehre, Pharmacopœa universalis,* 15th Edition.)

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arecolin must be accounted a poison, first, because of its effects upon the circulation which is already sorely taxed on account of internal hæmorrhage, and is then exposed to the further task of dealing with the large quantities of fluid passed into it through the enhanced activity of the secretory glands caused by the drug; and next, because of the considerable damage caused by it also to the heart. My treatment aims at bringing about a diminution in peristaltic activity through the action of *nealpon* and, further, at exerting a purely mechanical influence upon the bowels by (*a*) abdominal massage, with the horse lying down in the dorsal position, so as to cause relaxation of the abdominal muscles; (*b*) simultaneous attempts at reduction *per rectum*, and (*c*) the administration of what I consider to be the most important medicament, namely large quantities of liquid, up to 5½ gallons (25 litres). The administration of the liquid achieves a twofold purpose: (1) a supply of liquid is provided by way of the intestine to the general circulation to compensate for the quantities of blood that have been drained away and lost; (2) the large quantities of water have a mechanical action upon the displaced bowel which tends to restore it to its proper relationships. When fluids are administered by the stomach tube, which is passed along the gullet until it reaches the interior of the stomach, the gradual subsidence in the level of the fluid in the container followed by a complete stoppage in its flow indicates the moment when the gastro-intestinal tract has become well filled. I then proceed to lower the open end of the tube and allow a small quantity of liquid to drain back. Mild purgatives and cardiac medicines can be added to the tepid liquid injected through the tube.

I would like, finally, to refer again to a valuable and harmless aid in prognosis, namely, exploratory puncture of the abdominal cavity. By its means it is possible without ceremony to obtain information upon the state of the peritoneum as regards the degree of inflammation provoked by torsions, laceration of the intestine, and similar lesions. An ordinary injection or bleeding cannula is inserted slowly through the skin behind the xiphoid cartilage until it reaches the peritoneal cavity. The prognosis must be declared bad if a reddish fluid comes away mixed with fibrin shreds or food particles. This aid to prognosis fails, however, in cases of stomach rupture when the tear does not divide all the tissue layers in the stomach wall or when the escaping ingesta are retained within the omental sac. In general, rupture of the stomach is more difficult to diagnose than is commonly believed, except in those cases when vomiting is observed, for horses which before rupture takes place display great uneasiness together with marked outbreaks of sweating and perhaps also eructation afterwards suddenly become quiet and exhibit a temperature and pulse rate which fall within normal limits. It is only when the animal is seen to continue to refuse food and the rate of breathing is increased that one is led to conclude all is not yet well with it. In cases of stomach impaction I therefore recommend that the prognosis should be guarded, especially as the danger of rupture on account of violent falling of the animal is always imminent.

It would be of value in this connection to investigate, by collecting accurate statistics, the season during which the percentage death-rate is highest in cases of colic. Unfortunately, I have hitherto maintained no such figures, but the impression gained from my practical experience has been that the number of fatal cases of colic here in Mecklenburg have been usually larger during the second half of the year, and especially during the third quarter (July to September). The cause of this increased mortality, in my opinion, resides in the circumstance that sclerostome larvæ at this particular time undergo certain phases in their development and wanderings which favour the production of thrombi. Besides, during the summer months there exists also the possibility of fresh infestations with sclerostome larvæ especially when for the sake of convenience horses are allowed to drink water from village ponds. In a general way, I am convinced that many more horses become affected with thrombotic colic than the statistics would indicate. Torsion or displacement (intussusception) of the large intestine, diagnosed *per rectum* or *post-mortem*, is frequently merely a secondary manifestation; also, unfortunately, *post-mortem* dissections are not usually performed with such thoroughness that the original cause of the disease is unequivocally established.

To summarise, I should like again to emphasise that, from the standpoint of prognosis in the colics of the horse, I attribute special significance to the following:—

(1) The relationship between the temperature and the pulse rate;

(2) the reaction of the animal to treatment with opium derivatives; and

(3) exploratory puncture of the abdominal cavity.

I am conscious that it is not easy to produce any new information or something worth knowing out of a field of veterinary practice that has been so frequently exploited in the past. Nevertheless, so far as they may be deemed to quicken perception upon so obscure a field in the matter of diagnosis and prognosis, the observations made in the course of daily practice for several years seemed to me of sufficient importance to warrant their communication to

Clinical Articles

THE DIAGNOSIS OF NAVICULAR DISEASE

V. BERWYN JONES, M.R.C.V.S.
GUILDFORD, SURREY.

I should have greatly liked to have been present at the Central Veterinary Society's meeting on February 1st, but I am still incapacitated after a serious operation. Since I am most interested in the subject discussed, *viz.*, navicular disease, perhaps you will allow me to add a few remarks and observations that I should have wished to have made at the time so that they could have been either "pulled to pieces" or upheld by those present. They may now serve the purpose of promoting further discussion on this important subject.

Although, in this disease, I have only radiographed and confirmed by *post-mortem* examination "tens," compared with his "hundreds" of cases, I hope that Major Pryer will not think I am impertinent if I state that I am very largely in agreement with his observations and statements. If I may, I would make my observations in the order of the headings as in the published record of Major Pryer's paper.

Suddenness of Onset.—This was a feature of interest in a case radiographed for Mr. R. E. C. Bullen, M.R.C.V.S. In this the history was, if I remember aright—for I am away from home, and have not my notes by me—that the animal was turned out after hunting and was discovered lame while at grass a few weeks after. The subject had a good foot and although lame moved very freely, so that it seemed unlikely that navicular disease would be found. Two carious areas were demonstrated, however, and confirmed at *post-mortem*.

Diminution of Lameness on Exercise.—One case, in particular, pulled out very "groggy" but after a short exercise went level on hard ground when shod; he almost pulled up in mud, however. This horse remained hunting fit during the season 1922-3 and was successfully raced at its end. After the rest of a summer at grass, he became crippled and had to be destroyed.

Type of Foot and Subsequent Changes in Shape of Foot.—I shall be interested to learn if the disease has been found in the pony breeds. The great majority of my navicular cases have had good open feet; one, notably, a heavy draught animal, had very large side bones together with extensive caries of the navicular bone.

In the comparatively limited experience of a general practitioner that I have had, the so-called classical symptoms and altered feet have been remarkable in their absence.

I am not yet satisfied that the disease always starts within the bone; in fact, I am not at all sure that we have not to deal with two conditions which, at all events in the incipient stage, are quite separate. In other words, I suggest it as a possibility that we have two distinct diseases to diagnose and to deal with. It may be that one becomes finally merged into the other. An osteoblastic area of ostitis is quite often found confined to the central area of the posterior surface of the navicular bone; this, I think, may be ascribed to direct trauma; that it may finally end with an added caries of the bone I am not in a position to say. It seems more likely that the two separate conditions may, at times, be present together.

I have several bones of an obviously old-standing traumatic disease (if I may be allowed so to term the condition), but without any superficial suggestion of caries, and I have also several that shew more than one carious area but do not shew traumatic disease.

That ostitis is a sequel to caries I fully admit. Caries *per se*, I suggest, is not the result of trauma. The fact that the cartilage becomes eroded and the perforans fibres damaged and in the later stages adherent to the carious areas is, I suggest, a mechanical result of the ostitis subsequent to the caries. That is to say, in caries of the navicular bone the damage is caused from within outwards, *i.e.*, centrifugally, whereas in traumatic disease the damage to the navicular bone is from without, *i.e.*, from the originally strained and bruised perforans tendon. I would suggest that it is, in the absence of an intercurrent ostitis, not until the caries is sufficiently advanced to cause a breach in the surface of the bone, that we get any lameness, which at that stage is of sudden onset, marked, and with atypical symptoms. In my limited experience those cases which at *post-mortem* shew traumatic disease only have been the only cases that exhibited classical symptoms of navicular disease from when the case was first observed. That it is true some cases have, after a long period of lameness, at length produced classical symptoms, perhaps means that it is not until some degree of osteoblastic ostitis is present that the classical symptoms are recognisable.

The foregoing, of course, argues that it is not humanly possible to diagnose incipient navicular disease, for on the one hand, with early caries, the animal would not at first be lame, and on the other, the earliest diagnosis possible

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fellow practitioners, especially the junior ones. The purpose of my comments will have been completely attained if they have succeeded in awakening in any one or other of my colleagues a professional enthusiasm in the treatment of horses affected with colic, thankless enough as this task is often known to be. J. T. E.

would be a strain of the perforans at the level of the navicular bone and I have never heard this suggested.

A case I have in mind of traumatic disease is one of a hunter that had been intermittently lame for about twelve months. At *post-mortem* the perforans tendon, where it lays against the navicular bone, presented a picture of repeated bruisings over an area the size of a five-shilling piece: there was no evidence of caries, nor was the margin of the bone altered from the normal; however, a central osteoblastic ostitis was demonstrable on the posterior surface of the navicular bone—this area was not easy to see until the bone was boiled free from cartilaginous matter.

If this is considered the incipient stage I would state that it can be seen in a radiograph. It must be understood, and I am sure that Major Pryer will agree with me, that the reading of such radiographs should be the business of those that have applied themselves to this work—a microscopist would not expect a man unused to the work to see all that he could see, without tuition.

I have also had cases which have been radiographed, diagnosed as caries, and at *post-mortem* have shewn commencing surface caries with very little other apparent alteration of the navicular bone.

In a large number of my navicular cases there is a co-existing ostitis of the solar surface of the wing of the pedal bone. I have not yet observed this condition in cases other than those of navicular disease. A deformity of outline of the navicular bone is always present in advanced cases. I have one bone which has a most curious bony formation on the superior edge; it is of much the same width as the bone, about half as high as it is long, the length being about a quarter the length of the navicular bone, and it has a rounded top with a central depressed area. But for this the navicular bone appears unaltered, although its fellow was carious. It would seem to be an ossification of the superior ligament.

It was stated during the discussions that the *os pedis* was composed of such compact tissue that it tended to scatter even the hardest rays. In practice this is not so; a less penetrating ray is required to obtain the best radiographic pictures of this bone.

I believe that the radiographic diagnosis of foot diseases would be very greatly assisted by the taking of stereoscopic pictures. There is no great difficulty in adapting such an apparatus to our needs; the chief drawbacks are the added expense and the doubling of the time ordinarily required to take the radiographs. This would mean that only the less fidgety cases could be radiographed in this manner, for speed is often essential to success. I would point out, in this connection, that the Army have a slight advantage in that their horses are more used to unusual sights and sounds, such as are exhibited by an X-ray machine, than the average hunter and racehorse that I, through the awakening interest of the private practitioner to the immense value of radiography as a diagnostic aid, am privileged to have referred to me.

May I add my congratulations to Majors Pryer and Oxspring for the immense amount of painstaking labour and observation they have given to this increasingly important branch of veterinary work. In this particular disease I am but a humble follower of their initial work, and I am greatly indebted to them for many kindnesses.

* * * * *

A FURTHER NOTE ON PARAT LEAVES

C. P. HYNES, M.R.C.V.S.
Lismore, Co. Waterford, I.F.S.

Mr. Tutt's article on sterility and the use of parat leaves, in your issue of February 24th, makes very interesting reading to anyone who has to deal with this widespread trouble. The pessimism in the earlier portion of his contribution does not appear to have been borne out in his tabulated results, which seem, on the whole, fairly satisfactory. The grosser utero-vaginal lesions are, in my experience, far less common than the cases in which little change is discernible, beyond a varying degree of redness or roughness of the mucous membrane of the vulva, especially in the region of the clitoris, with recurring œstrum at normal or abnormal periods. It is in such cases that the parat leaves seem to give the most satisfactory results, compared with the various treatments recommended in the past.

Undoubtedly the grosser lesions of endometritis, deep-seated vaginitis, cervicitis or cyst, when apparent, must be treated individually. Mr. Tutt describes what may be termed a *maximum* treatment with the leaves and I encroach on your space only to say that fairly good results have also followed a *minimum* treatment in my hands, which, owing to the depressed economic conditions obtaining in this country at the moment, one has often perforce to adopt. This minimum treatment consists of only three pairs of parat leaves and one entozon pessary (Bayer). The treatment is commenced after an unserved œstrum has passed. Two pairs of leaves are inserted at equal intervals during the three weeks' quiescent period and during the same period the entozon pessary is used to medicate the mucous membrane of the vulva, about three times a week. This is done by inserting the convenient pencil-shaped bougie between the labia, using a push-and-pull movement, until a layer

of the acridine-active unguent is deposited on the mucous membrane. This flexible pessary will last for several applications of this kind and the abbreviated stump can then be passed up to the *os* when it becomes too short for further use. I find the pessary much better than the sterility powder advertised, which is undoubtedly very irritant, and which, in the blowing-in process, is apt to ricochet into one's face and eyes, so that the cow and the operator are often kicking and smarting at the same time. The third pair of leaves are inserted in 24 to 48 hours after service, but it is recommended by some authorities that they be inserted about three hours after service. I have tried them at both periods with no appreciable difference in result, and pass them up, on all occasions, as near to the cervix as possible. This is easily accomplished by a length of hose pipe about the diameter of the ordinary stomach tube and about 12 or 14 inches long. Into the tube the push-rod of wood or cane, some 3 or 4 inches longer than the tube, is snugly fitted to allow of easy movement, the surplus rod being covered with a corresponding length of tubing so that it acts as a combined stop and handle. By withdrawing the stilette a few inches the rolled leaves can be inserted into the bore of tube, which is then passed up, the rod pushed forward and the leaves expelled in the desired position. Suitable lubrication of the tube and vulva is, of course, desirable, and I suggest that an acridine lubricating preparation would be very suitable for this purpose, as the tube would then automatically medicate the contracting mucous surfaces. The use of this inserter does away with manual force and there is very little after-straining even in heifers. An equally useful appliance can be made out of a suitable piece of fresh alder from which the pith and bark have been removed and, as it costs nothing, this may be a consideration, as clients often fail to return one's rubber inserters. This method of leaf insertion may be already known; however, I give it for what it is worth. It is also useful for inserting the entozon bougie or the stump thereof in cases of enforced economy, but needless to say a more liberal treatment than that described is undoubtedly to be preferred.

VETERAN WAR HORSES

At a recent meeting of the show committee of the International Horse Show it was unanimously decided that owners of veteran War horses should be invited to send them to Olympia.

The public will be able to inspect the veterans in special stabling, where the War records of the horses will be exhibited. Owners of genuine 1914-1918 War horses are invited to communicate at once with the Secretary of the International Horse Show, at 66, Sloane Street, S.W.1, and to send the complete War record with all details of interest.

PRESERVATION OF THE FAUNA OF THE EMPIRE

Sir Peter Chalmers Mitchell presided at the annual meeting of the Society for the Preservation of the Fauna of the Empire, which was held on February 26th at the offices of the Zoological Society. He referred to the death of the King of the Belgians, who, he said, had been one of the pioneers in the preservation of flora and fauna. At his suggestion the meeting stood in silence to pay tribute to the King's memory.

Turning to the subject of films of wild life, Sir Peter Chalmers Mitchell said he was sure that most people joined with the members of the committee in deploring the continued exhibition of wild animal films in this country, which were so often grossly inaccurate from a scientific point of view and quite definitely showed signs of the use of cruelty. The society was dissatisfied with what was called film censorship in this country at the present time. Quite recently the Film Institute had been formed and the society had appointed one of its members to serve on the panels of that body.

African Reserves

The report of the executive, which was adopted, stated that, so far as it was known, no steps had been taken by the British Government to ratify the International Convention of 1933, but sight would not be lost of the matter. A sub-committee had been appointed to consider the feasibility of further investigations oversea similar to those carried out in East and West Africa during the last few years. They had ample evidence that such missions did much to stimulate local interest in the fauna of the countries visited.

"We should like," the committee added, "to pay a special tribute to Mr. H. G. Robins, of Wankie District, S. Rhodesia, who has presented to the Government of that country a ready-made game sanctuary of 25,000 acres, which will become State property at his decease, and it is stipulated that it be maintained as a sanctuary. This public-spirited offer has been accepted by the Government of S. Rhodesia. It is an example which, we hope, may be followed by others.

"Owing to the presence of tsetse flies, the agitation by the farmers in the vicinity against the Zululand reserves continues, and the future of these areas is still insecure. There is, however, a considerable force of public opinion in South Africa adverse to their abolition, and the matter is being carefully watched. The most important factor in connection with these reserves is that one of them contains the sole surviving representatives of the white rhino in Southern Africa."

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H.M. STATIONERY OFFICE PUBLICATIONS

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LIEUT.-COLONEL T. DUNLOP YOUNG, O.B.E., M.R.C.V.S., D.V.S.M.

Chief Veterinary Inspector of the Corporation of the City of London

AN APPRECIATION

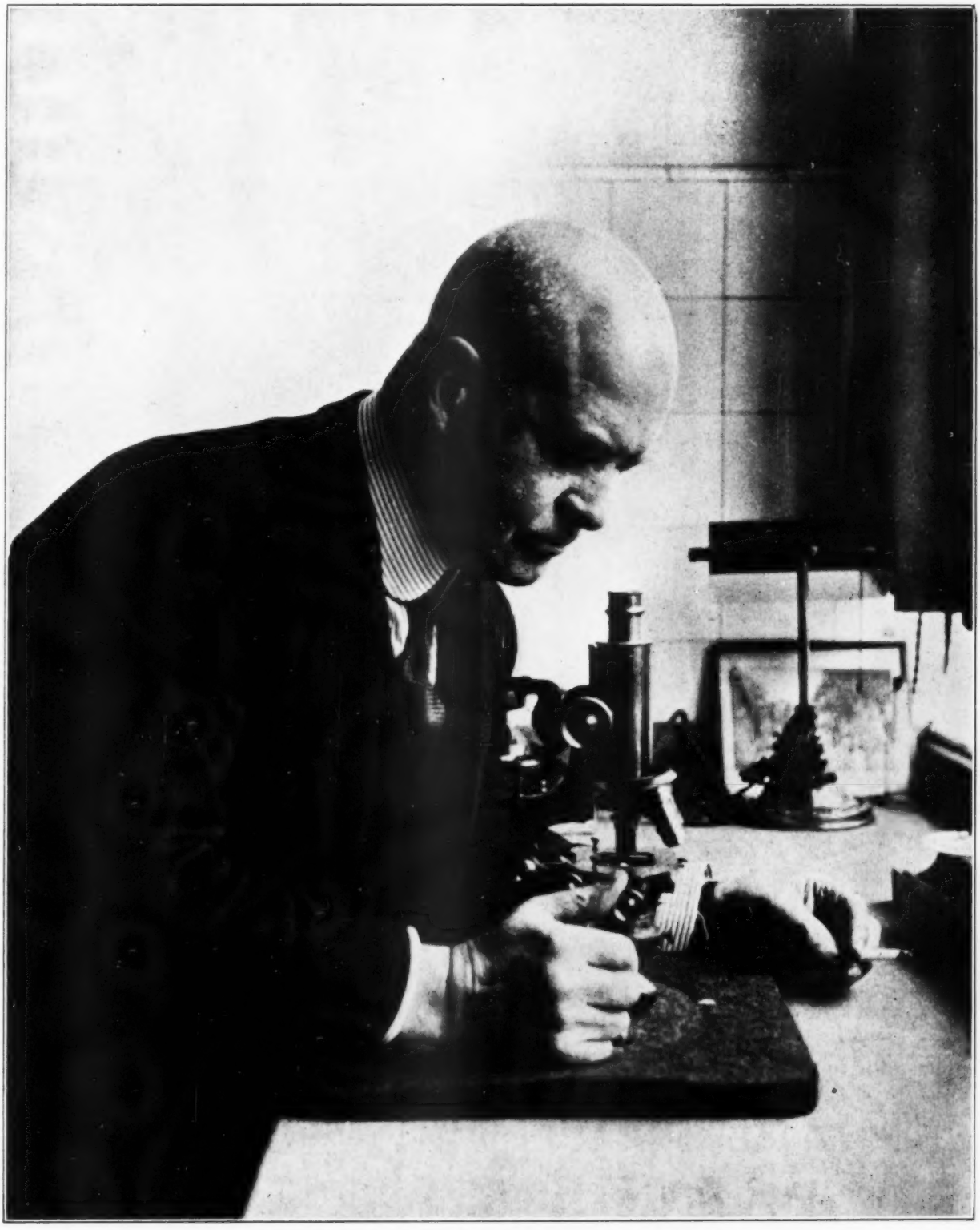
MAJOR-GENERAL SIR JOHN MOORE, K.C.M.G., C.B., F.R.C.V.S.

After a total of thirty-five years' service with the Corporation of the City of London (save war service in France), Lieut.-Colonel T. Dunlop Young is retiring this month, in accordance with the Standing Orders of the Court of Common Council, on account of age. It seems a pity that this should be so, for a man is as old as he feels, and the value of services rendered is commensurate with whatever spirit and ability the personal factor can be displayed. There can be no question that Lieut.-Colonel Dunlop Young's retirement will be a great loss to the Meat Trade in general, and to the Veterinary Profession of which he has been an outstanding member since the year 1909. His knowledge of farm animals and their suitability for human food is unique. His father was Stock Manager on one of Lord Rosebery's estates in Scotland, and the first principles of breeding and feeding were therefore bred in him. Educated with a view to becoming a veterinary surgeon and entering the Army, he unfortunately lost both his parents before he was 19 years of age, and had to earn his own living by first learning the trade of a butcher. At the age of 23 years he was appointed Superintendent of the Abattoir and Inspector of Meat at Greenock, receiving great help and guidance from Messrs. Robinson and Son, M.R.C.V.S., Veterinary Inspectors for the Town. After two years useful pupilage with the Robinsons, he accepted the position of Meat Inspector in the City of Glasgow, where he gained a varied experience in the inspection of cold stores, knackers' yards, shops, etc., at the same time attending classes at the Technical College and gaining prizes with Honours in the necessary subjects of physiology and hygiene.

In 1899 he was appointed Meat Inspector at Islington, coming under the guidance of Mr. J. King, M.R.C.V.S., and studying for the certificate of the Royal Sanitary Institute and the Sanitary Inspectors' Examination Board, which he obtained. In 1901 he was unanimously appointed Chief Meat Inspector, and Assistant to the Superintendent in the great Foreign Cattle Market owned by the City of London, where he had the unique experience of 1,300 cattle and 3,000 sheep killed daily, and diseases incidental to them. Acting on the advice of his Principals, he was recommended to qualify as a veterinary surgeon. After passing his matriculation examination at King's College he entered the Royal Veterinary College, London, carrying on his work at the same time, which meant working and studying 19 hours daily for four years. His career at the Royal Veterinary College was most successful for he passed all his examinations at the first attempt, gaining Honours in many of the subjects and a gold medal for the best essay. On the death of Mr. King in 1909, Lieut.-Colonel Young was in 1910 unanimously appointed to be Chief Inspector and Veterinary Inspector for the City, with special instructions to reorganise his Department. This he did most successfully, new By-Laws in respect to private slaughter houses being enforced, additional certificated inspectors appointed, and new temporary offices with a laboratory and detention room being obtained, and a clerical staff being appointed.

In 1913, he paid a visit to South America, with the result that inspection services both in the Argentine and Uruguay were put on a more satisfactory basis.

A few months after the outbreak of war, Lieut.-Colonel Young, then a Captain in the Territorial Force, brought out the personnel of No. 22 Veterinary Hospital to Abbeville, and from that time came under my command. From that period onward to the cessation of hostilities, I had full opportunity of assessing his organising powers as a Commanding Officer and of testifying to the valuable services he rendered to his country and in particular to the Royal Army Veterinary Corps, of which he was one of my most efficient officers. After handing over the personnel of No. 22 Veterinary Hospital to Major (now Sir Frederick) Hobday, he very successfully organised a Convalescent Horse Depôt for 1,200 horses and mules in the chalk and sand region of Dannes-Camier, 10 miles south of Boulogne. He was afterwards given the command of No. 23 Veterinary Hospital, established in the Barracks at St. Omer, a Veterinary Hospital organised for the reception of 2,000 sick animals, and necessitating the building of additional accommodation to the original stables of the barracks. It was entirely due to Major (afterwards promoted to the rank of Lieut.-Colonel) Young's organising ability and sympathetic handling of his N.C.O.'s and men that the hospital showed such a splendid record, despite the fact that it was on many occasions the mark for enemy bombs and shells. After the Armistice the hospital was used as a depôt for the disposal of our horses and mules to the agriculturalists and municipalities of Northern France and Belgium, some 14,000 horses and mules being thus disposed of, Lieut.-Colonel Young acting as Sales and Accounting



LIEUT.-COLONEL T. DUNLOP YOUNG, O.B.E., M.R.C.V.S., D.V.S.M.
CHIEF VETERINARY INSPECTOR OF THE CORPORATION OF THE CITY OF LONDON.

Officer. For this he received a Citation and the Medaille de Reconnaissance from the President of the French Republic.

I am personally grateful for the great help Lieut.-Colonel Young rendered to me and to the Royal Army Veterinary Corps during the war, and mention in despatches and the award of the O.B.E. were richly deserved. I would have preferred the honour of D.S.O., but it was ruled at the time that the latter decoration was only to be granted to those in the fighting line.

Since the conclusion of the war and his return to civil life, Lieut.-Colonel Young has been very active in matters of Public Health, and the formulating of Regulations regarding the slaughtering and inspection of animal, and in the transportation and handling of meat. The effect of this has been the closing of private slaughter-houses in the City, and the transfer of the killing of animals to the Public Abattoirs at Islington.

Caseous lymphadenitis in sheep carcasses and the method of examining hind quarters of beef in Australia resulted in a visit to Australia and New Zealand and placing systems of inspection in those exporting countries on a better footing. Returning *via* Canada and U.S.A. he made a study of meat inspection in those countries. Visits to Switzerland, Germany, Holland and France were usual during his service with the Corporation of the City of London; and in 1932, he paid a special visit to the Argentine, Uruguay, and Brazil to see the improvements of their meat inspection systems, thus adding to his long and varied experience of inspection of meat and meat products at home and abroad. But for the untimely death of Dr. Howarth it was the intention of that officer and Lieut.-Colonel Young to publish a book on "Meat and other Foods Inspection," but Lieut.-Colonel Young has edited the English Edition of Ostertag's "Handbook of Meat Inspection." He has also been invited to read a paper on Meat Inspection at the forthcoming Internation Veterinary Congress to be held at New York in August.

For the erection and equipment of the new Meat Inspectors' offices in Charterhouse Street, near the market, Lieut.-Colonel Young was mainly responsible.

As a mark of appreciation of his services on retirement the Corporation of the City of London have made him a Member of the Butchers' Guild, a Freeman of the City of London, and a Member of the City Livery Guild.

Though the age limit sees the termination of his more than useful career with the City of London and its Corporation, it is comforting to remark that there is a likelihood of his services being considered in an advisory capacity by certain sections of the Meat Trade Industry.

Abstracts

[On the Lack of Evidence of Transmission by Human Beings of Tuberculosis due to the Bovine Type of Bacillus. Walker, G. (1934.) *Brit. Med. Jour.* No. 3817. Pp. 371-373. 3 Refs.]

The measures taken for the control of tuberculosis depend upon a knowledge of the epidemiology of the disease, and in the case of human type infection the mechanism of spread is sufficiently well understood to permit the promulgation of preventive measures, which are —at least theoretically—adequate. The purpose of this paper is to draw attention to a serious gap in our knowledge of the epidemiology of bovine type infections—namely, whether transmission can occur from one human being to another, or whether the condition is self-limiting and the extent of bovine type infection in man is dependent solely on the amount of tuberculosis in cattle. If the former, then the value is much less apparent of the present administrative measures designed to eradicate human tuberculosis of bovine origin, which are directed towards improvement of milk supply and the quality of dairy herds.

For the past two years the author has been associated with Dr. Munro in isolating and typing the organisms from every case admitted to the Glenlomond Sanatorium, Kinross, with tubercle bacilli in the sputum. Up to September, 1933, 595 Glenlomond strains have been there dealt with and, of these, 23 proved to be bovine, while in one case a mixture of bovine and human type bacilli was found, giving a percentage incidence of bovine type of four. In addition, two bovine strains were isolated from a total of 40 specimens examined from Ayrshire.

Consideration of the groups of cases of chronic pulmonary tuberculosis due to the bovine organisms reveals that, while they are clinically and radiologically indistinguishable from cases due to human bacilli there is an apparent epidemiological difference at present unexplained—namely, the complete lack of proof of transmission from one human subject to another. How otherwise it is with tuberculosis due to human type bacilli is well-known. There is no apparent reason why similar transmission of the bovine type from human to human should not occur, but only examination of a large number of cases and full bacteriological investigation of those which show a family history of tuberculosis can settle the issue.

Two cases are reported in detail showing how presumptive evidence of familial disease due to the bovine bacillus was dispersed by bacteriological examination, and there are also recorded three cases in the Glenlomond series in which two members of the family suffered from tuberculosis, the bovine organism being isolated in

each case from the sputum of one member, but where bacteriological confirmation of infection or otherwise of the other member with the bovine organism was not available.

The author concludes that there is no proof that spread of bovine type tuberculosis by humans occurs, despite the fact that there are opportunities for contact infection under conditions similar to those which cause spread of tuberculosis due to human type bacilli. (In recent cases sputum rich in bovine type bacilli has been obtained, and so far as contact infection depends upon the number of bacilli thrown off in sputum, there seems to be no reason why it should not occur as easily with bovine as with human type cases.) It is suggested that the bovine bacillus has a lower invasive capacity than the human, and produces progressive disease less readily. Against the "mutation of type" theory it may be pointed out that the type characteristics of tubercle bacilli are remarkably stable—less than 3 per cent. showing divergence, in cultural character or virulence, from standard types, and no range of transitional strains is found. Further, attenuation does not appear to be related to the age of the patient.

W. B.

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[Sero-diagnosis in Tuberculosis. (Trans. title.) Paarmann, E. (1924.) *Deuts. tierärztl. Wschr., 42,* 68.]

The antigen recently prepared by Witebsky (1931) and his colleagues has been found by many workers to excel the antigens previously investigated for use in the complement fixation test for human tuberculosis. It is claimed to be extremely sensitive, uniformly active, and very stable, so that large batches can be manufactured and reliably standardised before consignments are issued to workers (now by the German Dyestuffs Corporation). Dr. Paarmann (State Hygiene Institute, Danzig), in a preliminary statement upon the results he has obtained with about 500 cattle, now maintains that the antigen can be reliably employed for a quantitative estimation of the antibody content of a bovine serum, which in turn gives a trustworthy measure of the severity of the tuberculosis affecting the animal.

The technique follows that recommended by Witebsky and others, but instead of employing the antigen in a full range of graded dilutions to obtain very exhaustive knowledge upon the antibody content of the serum, Dr. Paarmann, in the modified method which he recommends for reasons of economy for use upon cattle, employs three different dilutions only. The results obtained with these dilutions indicate sufficiently, he maintains, the state of infection in the animal for the purposes of a campaign against bovine tuberculosis.

The antigen as supplied by the manufacturers, which consists of a benzol extract of tubercle bacilli (human type) is mixed with carbol (5 per cent.) saline (0·85 per cent. NaCl), to make a 1:10 dilution. This stock dilution is then boiled repeatedly to drive off the benzene, and in this condition the watery solution will keep for several months. Before use, this stock dilution is further diluted with saline (A) 30, (B) 90, and (C) 1,000 times, to provide the series of dilutions deemed most suitable in bovine tests. The method then used in testing a sample of bovine serum follows closely upon the standard procedures now commonly adopted in complement testing. Each of the three tubes in which a suspected serum is tested contains: (i) the suspected serum (0·25 c.c. of a 1 in 5 dilution inactivated at 60° C.), complement (0·25 c.c. of guinea serum, to contain 1½ m.h.d., as determined by preliminary test within dilutions of 2 to 5 per cent.), and antigen (0·25 c.c., in graded dilution, as mentioned above). This mixture is kept at 37° C. for 20 minutes, and sensitised red corpuscles (0·5 c.c. of 3 per cent. sheep cells+ amboceptor) are then added. When hæmolysis is complete in the serum and antigen controls for each serum, the tests are read off. They are read off again in three to 24 hours for any evidence of delayed hæmolysis.

In general, the results of previous work upon the diagnosis of tuberculosis by means of the complement test have indicated that positive results are obtained in the test only when the disease is well advanced. The three gradations in amount of antigen (A, B and C), in so far as positive results are revealed in any or all of them, provide evidence regarding the state of infection, which may be interpreted as follows:—

A. In a campaign against tuberculosis, a reaction would indicate cases which are not restricted to the commonest forms, *i.e.*, those with lesions confined to the bronchial and mediastinal glands. The result would thus differentiate between clinically insignificant and other cases. The insignificant forms would give no marked reaction in this tube, whereas they might well do so if still larger quantities of antigen were employed. Nevertheless, disease which has progressed to cause marked involvement of the lungs and pleura may escape detection in this tube, for it would seem that antibodies are not formed to a clearly recognisable degree until comparatively late in the progress of the disease. Moreover, temporary fluctuations may be exhibited in the concentration of antibodies, so that the reaction may vary from a negative to a strongly positive one, depending partly, perhaps, upon the relative state of quiescence or activity of the disease.

B. This furnishes corroborative information to that given by A. Thus, in the case of the

majority of sera which contain rather low concentrations of antibody, and yet cause complete, or nearly complete, fixation of complement in A, there will be either weak or no fixation in B. Some reaction in this tube therefore indicates a higher antibody content, but gives no decisive information regarding the severity of the lesions.

C. Well-marked reactions indicate a high antibody content, and after slaughter the reacting animals have shown such extensive lesions that from the standpoint of economy and public health it can be declared that when an animal shows a serological reaction to this degree its destruction should be urged forthwith.

The method, it is claimed, inasmuch as it does not stand in need of recourse to any additional system of examination (clinical, bacteriological, animal experiment) provides for the first time a single means of selecting cases of bovine tuberculosis that call for eradication in a tuberculosis campaign. The test can be applied to milk as well as to blood samples.

J. T. E.

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[**A Study on Tuberculin with Special Reference to the Double Intradermal Test.** Glover, R. E. (1932-33.) . Third Rept. Director, Inst. Anim. Path. Univ. Camb. 200.]

The author's investigation was undertaken with the object of throwing some light on the causes of non-specific reactions to tuberculin in cattle with a view to preparing a product which would reduce or eliminate such reactions.

He describes four methods of obtaining the active fraction from dilute tuberculins, by precipitation with ammonium sulphate, acids, ethyl alcohol and acetone respectively. Comparative tests were carried out on infected and non-infected cattle with the precipitated products and with a standard tuberculin, and in each case the recovery of a specific fraction was confirmed.

The intensity of the reactions obtained in infected beasts varied slightly, but they were generally as clear-cut as those resulting from the injection of the standard tuberculin, while in non-infected animals they were usually less marked than those given by the standard.

Evidence is also produced illustrating the effects of heat, filtration and formalin on dilute tuberculin prior to precipitation by ammonium sulphate. The results indicated that although heat does not reduce the potency of the tuberculin, it may, if prolonged, tend to increase the non-specific constituents. Neither filtration nor formalin appeared to affect the specific fractions.

In addition to the preceding methods, active fractions have been prepared by cultivating the tubercle bacillus on a modified Long's synthetic medium followed by precipitation with ammonium sulphate. Since with these products the non-specific swellings were appreciably reduced, it would appear that synthetic tuberculin presents a definite advantage over " O.T." Tuberculinogenic substances were also extracted from the organisms themselves.

The nature of the non-specific reactions is discussed in relation to the constituents of the media which are in common use for the production of tuberculin.

H. R. A.

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[**Comparative Field Trials of a Synthetic and a Standard Tuberculin.** Buxton, J. B., and Glover, R. E. (1932-33.) Third Rept. Director, Inst. Anim. Path. Camb. 227.]

This article embraces the results of tests which were carried out by veterinary surgeons in various parts of the country with the object of determining the comparative value of a standard and a synthetic tuberculin.

In all, 915 cattle were tested, of which 697 were negative to the standard tuberculin and 703 to the synthetic—while 201 animals reacted to both products. In 23 cases discrepancies occurred. Over the whole series of negative animals the synthetic tuberculin gave a smaller average increase on skin measurement than the old tuberculin, whilst in reactors the potency of the products was about equal.

Post-mortem examinations of tested animals were carried out in 36 cases and the findings are recorded. The question of sensitisation by synthetic tuberculin is discussed, and experiments are detailed which indicate that this phenomenon does not occur either in relationship to the synthetic product itself or to the concentrated tuberculin usually employed.

H. R. A.

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[**The Preparation of a Synthetic Johnin.** Glover, R. E. (1932-33.) Third Rept. Director, Inst. Anim. Path. Camb. 233.]

The author describes a method for the preparation of a synthetic johnin.

Cultures were obtained on a modified form of Long's synthetic medium containing a glycerine extract of *B. phlei*. They were incubated at 37°C. for four months, steamed for two hours and the liquid filtered and precipitated with ammonium sulphate. The precipitate was redissolved in one-tenth its volume of a one to four glycerine—tap-water solution, and preserved with 1-1000 formalin.

The final product was primarily tested in an experimentally infected calf, and two calves which were negative to both tuberculin and a johnin of known potency. Later, the same product was tested in a naturally infected herd. In

each case the synthetic johnin was found to be about equal in potency to a standard (which was used simultaneously) in the infected animals, whilst in the non-infected animals the reactions were considerably smaller than those given by the standard johnin.

H. R. A.

* * * * *

[**Some Observations on Several Outbreaks of So-called Lactation Tetany in Cattle.** Blakemore, F., and Stewart, J. (1932-33.) Third Rept. Director, Inst. Anim. Path. Univ. Camb. 159.]

The authors, having investigated four outbreaks of lactation tetany, suggest that the disease is sporadic in character, and is not confined to any particular breed, age or type of cow. Their material was obtained during the early spring months from animals at pasture, but typical cases were reported in stall-fed cattle during the winter months.

They classify the disease under three headings, *viz.*, acute, sub-acute and chronic, the last-named being indistinguishable from so-called acetonæmia. They affirm that the results of blood examinations show that the findings are similar in all types, *i.e.*, a slight lowering of the calcium, some variation in the phosphorus and a definite lowering of the magnesium. There was no evidence of alteration in the blood sugar or non-protein nitrogen. A fall in magnesium was also observed among the "normal" contacts. A few urine examinations were made and showed the presence of ketone bodies.

An account of the *post-mortem*, histological and bacteriological findings is given.

P. S. W.

* * * * *

[**Systematic Account of the Control Work on Mastitis performed by the Laboratory of the Bernese Milk Society.** Kastli, P. *Schweiz. Archiv. f. Tierhlk.* (1933.) 75, 9.]

An important progress report of work on a large number of Swiss dairy farms and concerned chiefly with the laboratory diagnosis by all the usual methods of udder disease, together with conclusions drawn from the results by the author.

The paper is too long to abstract systematically, so the conclusions alone are translated herewith.

(1) A general udder examination, carried out in 1931 on a total of 1,608 milch cows, showed that 10·9 per cent. were affected with "udder catarrh" (abnormal milk showing no mastitis streptococci in the sediment) and 0·87 per cent. with streptococcal mastitis.

(2) In 129 farms containing 1,355 cows, 10 per cent. contracted udder catarrh and 3·7 per cent. contracted mastitis within a period of two years.

(3) No increase in the number of cases of udder disease was observed over a four-year period.

(4) Cases of mastitis occurred in the past two years in 23 out of 24 farms, in which it was known to be present at the beginning of observation [continuance of infection in farms already infected].

(5) No significant connection between byre hygiene and the incidence of mastitis was noticed.

(6) Mastitis was relatively infrequent in young cows.

(7) Mastitis was commonest in cows at a late stage of lactation.

(8) There was no direct connection between milk yield and liability to mastitis.

(9) Fifty-three per cent. of cases of mastitis showed clinical changes of the udder.

(10) Only in a minority of cases was mastitis discernible from inspection of the milk.

(11) Microscopic examination of milk sediment only showed about one-half the number of cases of udder infection as were diagnosed by the cultural test.

(12) Hind quarters of the udder were more frequently affected than fore quarters.

(13) The course of mastitis varied considerably, but usually led to atrophy.

(14) In three out of 13 farms mastitis died out spontaneously in the course of four years.

(15) In seven infected farms containing 135 cows, 84 cows became affected during two years.

(16) For the control of mastitis, separation of the healthy from the infected cows (as determined by the cultural test) is recommended, for so long as progress in chemotherapy and vaccination is lacking.

[Note.—The original contains much statistical matter, including percentage calculations, etc., for every aspect of mastitis. "Mastitis" above means streptococcal mastitis in every case.]

J. E.

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[**Experimental Trichomonad Abortion in Cattle.** Riedmüller, L. *Schweiz. Archiv. f. Tierhlk.* (1933.) 75, 9.]

The author, one of the first to investigate genital infection of cattle with trichomonas, here reports the results of seven experiments on cattle, using suspensions of trichmonas which were applied intrapreputially into two young bulls and intravaginally into five cows, one of which was 5 months pregnant. This cow, which had an abnormal cervix lacking the usual mucus plug, aborted 25 days after infection, and the body of the fœtus contained a heavy trichomonas infection, but infection had died out of the uterus within four days of abortion.

In all the other cases infection did not become established.

J. E.

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[Schistocephalus, Hydrocephalus and Twin Heads in the Calf. Vitu, P., and Houdiniere, A. *Rev. Gen. de Méd. Vét.* *42*, 504. (3 refs.)]

The authors describe the above three types which were encountered in Nancy abattoir. The first type shows a shortening of the upper jaw, the lower jaw protruding forwards, then up and back almost to touch the forehead. In the case of hydrocephalus, the fluid was entirely in the frontal region. The twin head calf had a normal body, but just behind the atlas two heads formed symmetrically except for a slight twist of the lower jaw. All the cases are described in full and illustrated by photographs.

D. W. M.

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[A Synopsis of the Diseases of Poultry met with in Practice. Grzimek, B. *Tierärztl. Rundsch.* (1934.) *40*, 6.]

In view of the large volume of literature which has accumulated in recent years and the fact that advances have been made not only in the methods of management of poultry but also in the realm of disease, the author was prompted to make a brief survey of all those diseases which are of any significance, indicating where necessary features of importance when making a differential diagnosis.

The following are some of the diseases dealt with the author's remarks upon the ætiology, symptoms and treatment, the more generally known facts relating thereto being omitted.

Coryza Infectiosa.—According to de Blieck, this is a disease of bacterial origin. Fowls and pigeons are affected, but not geese.

Symptoms.—Rhinitis, leading to catarrh with a purulent exudate, conjunctivitis and inflammation of the infra-orbital sinus. The course of the disease is slow, usually lasting weeks or months and although death rarely occurs the loss of an eye is common.

Treatment.—Isolate single cases in a dry place, add chinosol to the drinking water and spray birds at night, when roosting, with a solution of this disinfectant in the proportion of 3:1000 in water.

Fowl Pox.—Can be transmitted by blood-sucking parasites. *Stomoxys calcitrans* remains infective for fifteen days after sucking the blood of an infected fowl and *Culex* sp. as long as seventy days.

Treatment.—The vaccine is said to have no curative properties but full immunity is developed in fourteen days and lasts for a year. This is best carried out in July and August when the disease is least prevalent.

Pigeon Pox is caused by a virus distinct from that of fowl pox.

Leukæmia only affects the domestic fowl and is caused by a virus probably transmitted by blood-sucking parasites. The disease runs a chronic course.

Symptoms.—Comb pale and contracted, loss of weight and often sudden death due to rupture of the liver, which is enlarged to as much as ten times the normal.

Fowl Cholera.—The causal organism, *B. avisepticum*, remains alive up to one month in fæces and three months in the carcass. House flies can carry infective material.

Treatment.—Methods of immunisation are not satisfactory. The best disinfectant is a ½-1 per cent. solution of caustic soda.

Polyneuritis Infectiosa (Fowl Paralysis). said to be caused by an ultra-visible virus. The period of incubation is from 66 days to 7½ months. It is essentially a disease of young birds and exhibits symptoms distinct from those produced by coccidia, tapeworms or nutritional deficiencies. Infection can occur through the egg.

Blackhead in Turkeys. The author is of the opinion that the cæcal worm favours the existence of *H. meleagris* and recommends measures to be taken against its introduction. Young turkeys should be reared on ground that has not had stock upon it before.

Cestode and Nematode infections. Kamala and nicotine are advised.

Gapes. *Treatment.*—Dilute Lugol's solution 1:10 in distilled water and with a syringe drop 0·1-0·5 c.c. into the trachea. Water at 70°C. effectively kills the eggs in infected material.

N. S. B.

Report

BIHAR AND ORISSA

Annual Report of the Civil Veterinary Department, for the year 1932-33. [Superintendent, Government Printing, Bihar and Orissa, Patna, India. Price Rs. 1-3-0.]

The report is submitted to Government by Major P. B. Riley, Director of Veterinary Services. A map of the Province, showing the prevalence of cattle disease, and an illustration of the office and laboratory at Cuttack are included.

Staff.—Major Riley was in charge of the Department throughout the year under report. Rai Sahib P. N. Das, Assistant Director, Orissa Range, retired during the year after 32 years' service. Government had recognised his good work by conferring upon him the title of Rai Sahib and his retirement is noted as a great

loss. His place was taken by Babu Nilmoni Chatterjee, who was succeeded in the Central Range by Mr. S. K. Sen, M.R.C.V.S., Mr. M. I. Malik, M.R.C.V.S. held charge of the North Bihar Range throughout the year. Mr. Lakshmi Sahai, M.Sc., M.R.C.V.S., who has completed a special course of training at Muktesar, started work as Disease Investigation Officer in November. The strength of the subordinate staff remained practically stationary.

Disease.—There was a slight increase in the number of outbreaks, due, it is suggested, to more efficient reporting. There was an actual decrease in mortality attributed to decreased virulence in the case of rinderpest and to the provision of better facilities for treatment by the opening of field dispensaries. Preventive inoculation was widely adopted in increasing measure. The Director reviews the position in regard to rinderpest inoculation at some length. He reports successful results with "goat virus" vaccination and suggests that this method may prove a practical substitute for serum inoculation.

There was a satisfactory increase in the number of animals treated on tour and at veterinary hospitals and dispensaries. There was also an increase in the number of castrations performed. The number of veterinary hospitals remained stationary but during the year the system of establishing field veterinary dispensaries in charge of touring veterinary assistant-surgeons developed very successfully and is reported to be very much appreciated by the public. Laboratory diagnosis was carried out as usual at the Veterinary College and Range Laboratories, a large number of specimens being examined. Under "Investigation of Disease" experimental treatment in various diseases is commented upon. The Disease Investigation Officer has started a survey to determine the incidence of tuberculosis and Johne's disease.

The Veterinary College.—Mr. R. T. Davis, the Principal, was in charge throughout the year. The work continued to progress satisfactorily, but there was a disappointing decrease in admissions, due, it is explained, to economic depression and lack of employment for veterinary assistant surgeons.

Cattle Farm.—The Patna cattle breeding and dairy farm, which is under the immediate supervision of the Principal of the College, had a successful year financially and there was increased production. In view of this it is a matter for regret that more pure-bred cows, which are obviously required, could not be purchased during the year.

General.—The Government are pleased to note the names of officers who have been specially commended for good work and record their thanks to Major Riley and to those non-officials who have co-operated in the departmental activities. G. K. W.

COUNTY COUNCILS ASSOCIATION

Matters of Veterinary Interest

The report of that portion of the January meeting of the Executive Council of the County Councils Association which is published in the current issue of the *County Councils Association Official Gazette*, includes the report of the Agricultural Committee, which was adopted, and which, as shown below, embraced a number of matters of veterinary interest.

Inspection of Dairy Cattle

The Committee considered the resolution passed by the National Veterinary Medical Association of Great Britain and Ireland with reference to the Report of the Re-organisation Commission for Milk.

The Chairman reminded the Committee that the questions of the routine inspection of dairy cattle and the appointment of whole-time veterinary officers had been dealt with at length in the evidence submitted by the C. C. Association to the Cattle Diseases Committee of the Economic Advisory Council, and it was then resolved "That the foregoing resolution be received."

Poultry Diseases

The Chairman of the Committee reported that, in accordance with the resolution passed by the Committee at their meeting in July last, the question of the measures that could most effectively be adopted for dealing with infectious poultry diseases had been mentioned by the Deputation which waited upon the Minister of Agriculture and Fisheries for the primary purpose of discussing land drainage grants, and that it had also been the subject of a conference with Mr. H. E. Dale and other officers of the Department on a subsequent occasion.

It appeared that both the Ministry of Agriculture and the Agricultural Research Council were convinced of the need for more intensive research and that it was their intention to ask that more money should be made available for this purpose, as lack of finance at present constituted the chief obstacle to further progress. The feasibility of co-operation with the county authorities in this matter was a point which would be borne in mind.

The Chairman added that, on the question of the legislation which the Minister had indicated his intention of introducing at a convenient opportunity, Mr. Dale had stated that the Bill, as at present contemplated, would be in general terms authorising the Minister to make orders relating to such matters as the cleansing and disinfection of market pens, crates and vehicles, and the importation of poultry diseases from abroad. In this connection, it was thought that consultation with representatives of the Association prior to the issue of Orders might serve a useful purpose.

The Chairman also stated that, in the course of the discussion, reference was made to the question of compulsory notification, but it appeared that this solution of the problem would be attended by considerable difficulties.

The Report of the Conferences with the Ministry of Agriculture was received and adopted.

Swine Fever

The Committee considered a letter from the Lindsey Diseases of Animals Sub-committee requesting the Association to take up with the

Ministry of Agriculture the question of reverting to the old method of payment of compensation for pigs destroyed under the Swine Fever Orders.

"Doubtless you are aware," stated the letter, "that, under the old method, when the Inspectors of the Ministry visited swine fever infected premises they caused all infected pigs and frequently all contact pigs to be slaughtered. Previous to slaughter a value was agreed with the owner, and compensation was paid by the Ministry. Under the arrangements now in force only pigs actually affected with fever are liable to be slaughtered and, in the opinion of the Sub-Committee, there exists a grave risk that pig owners whose premises have been declared an 'infected place' might suffer serious financial loss through contact pigs contracting the disease and dying. Moreover, even infected pigs are not now slaughtered unless it is necessary in order to obtain a veterinary diagnosis."

The Chairman having stated that swine fever and other diseases were now the subject of investigations by the Agricultural Research Council, it was agreed to refer the matter to the Advisory Sub-Committee for consideration and report, and that an officer attached to the veterinary department of the Ministry be invited to attend the meeting.

Foot-and-Mouth Disease

The Committee considered the following resolutions passed by the Leicestershire County Council with reference to the Foot-and-Mouth Disease (Infected Areas Restrictions) Order, 1925:—

"(*a*) That, in the opinion of this Committee, the present restrictions on the movement of stock after an outbreak of foot-and-mouth disease within a 15 miles radius of the place of such outbreak is a great hardship to all farmers and dealers in cattle, sheep and/or pigs. That a radius of 15 miles should be imposed for one week only. By this means markets situated some distance from an outbreak, which would otherwise be closed for the sale of stock (other than fat stock for immediate slaughter) would be free for the normal sale and buying of stock and thus prevent serious interference with the whole industry of agriculture.

"(*b*) That this opinion is borne out by the many sporadic outbreaks which cannot be accounted for and by statistics supplied by the Ministry of Agriculture and Fisheries in their letter of July 21st, 1933, showing outbreaks outside the 15 miles radius and up to 22 miles.

"(*c*) This Committee is also of the opinion that owing to the facilities for conveying stock by motor transport the imposition and retention of a 15 miles radius has no justification."

In this connection, they had before them correspondence which had passed between the Leicestershire County Council and the Ministry of Agriculture.

It was resolved "That the Committee are of the opinion that, before any representations are made to the Ministry of Agriculture, an opportunity should be taken to discuss this subject with the National Farmers Union, and that arrangements be made for this purpose.

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FOOT-AND-MOUTH DISEASE IN THE NORTH RIDING

After nearly five months' entire freedom of the whole of Great Britain from foot-and-mouth disease, an outbreak was confirmed on March 21st, at Bedale, near Northallerton, in the North Riding of Yorkshire.

The area subject to movement of animal restrictions lies in the North and West Ridings of Yorkshire and in the County of Durham.

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R.A.V.C. POINT-TO-POINT CHALLENGE CUP

The Ninth Annual Race for the R.A.V.C. Point-to-Point Challenge Cup will be run this year at the Hambledon Hunt Point-to-Point Races at Liss, Hants. (three miles from Bordon, three-quarters of a mile from Liss Station, Southern Railway), at 3 p.m., on April 21st. Winner to receive R.A.V.C. Challenge Cup and Replica, and 75 per cent. of sweepstake. Second to receive Challenge Cup, presented by Major-General Sir John Moore, K.C.M.G., C.B., Replica, and 25 per cent. of sweepstake.

Conditions of the Race.—For horses the property of or Government horses hired by officers of the R.A.V.C., serving or retired (Territorial and ex-temporary officers included). Horses to have been in the possession of or hired by those qualified to enter from a date not later than March 1st, 1934, and to have been regularly hunted with a recognised pack of hounds or drag hunt during the season 1933-34. Certificates to this effect, unless registered at Vinton's, to be signed by the M.H. No horse is qualified to run which has ever won a race of any description (Point-to-Point, Bonâ-fide Hunt and Military races excepted). Weights, 12-st. 7-lbs. or over. Winner of Point-to-Point, Bonâ-fide Hunt or Military race since January 1st, 1932, to carry 7-lbs. extra, of two or more such races 10-lbs. extra. To be ridden by those qualified to enter.

Entrance fee: One sovereign.

Entries close on April 11th, 1934.

Arrangements for the stabling and forage of horses, and accommodation of grooms at Aldershot or Bordon will be made on application to the Honorary Secretary at the time of entry.

Officers whose horses are normally stabled outside a radius of 30 miles of the venue, and are starting in the race, will be entitled to a sum up to £4 a horse, equal to the amount of railway fare incurred in sending a horse to and from the meeting.

A Corps Tea Tent is available on the course for the use of officers and their friends. Tickets, price 2s. 6d. each, can be obtained in advance from the Hon. Secretary, or from the R.A.V.C. Tea Tent Office on the course. It is requested, however, that tickets be purchased two weeks prior to the meeting, in order that some idea of the number to be catered for may be obtained.

In order to ensure the success of the race, the committee ask that all officers who are able to do so will make every endeavour to enter a horse. By entering a horse an officer is entitled to a free car pass on to the course, which normally costs 10s. For entry forms apply to the undersigned.

P. F. Woodland, Major, R.A.V.C.,
Hon. Secretary, R.A.V.C. Point-to-Point Association.

Station Veterinary Hospital,
Aldershot, Hants.

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A highly fatal disease of canaries believed to be due to a filtrable virus has been reported by Kikuth and Gollub. Pigeons and chickens are immune but sparrows and finches apparently are susceptible. No method has been developed for immunising canaries or other susceptible birds.—*Bio. Abs.*

South African Veterinary Board

In our issue of May 20th, 1933, we recorded that a new Veterinary Act had been passed by the Senate and House of Assembly of the Union of South Africa which, *inter alia*, provided for the establishment of a Veterinary Board, which includes three representatives of the South African Veterinary Medical Association.

Through the courtesy of Dr. H. H. Curson, Hon. Secretary of the South African Veterinary Medical Association, we are enabled to reproduce a photograph of the members of the first South African Veterinary Board.

[*A. Blaettler's Studio*

Standing: Dr. H. H. Curson, Mr. A. C. Kirkpatrick, Mr. J. Tromp, *Registrar*.
Sitting: Mr. F. J. Carless, Dr. P. R. Viljoen (*Chairman*), Dr. P. J. du Toit.

N.V.M.A. Divisional Reports

NORTH WALES V.M.A.*

ANNUAL MEETING AT RHYL

The Annual Meeting of the Division was held on Friday, November 17th, 1933, at the Imperial Hotel, Rhyl. The President, Mr. R. L. Lewis, occupied the chair, and there were also present —Messrs. Booth, Cane, Cartwright, Edwards, T. Hughes, W. Hughes, H. Ll. Jones, L. Ll. Jones, W. O. Jones, W. T. Rowlands, H. Williams, Wynne and H. V. Hughes (Hon. Secretary). Apologies for absence were received from Mr. Burrow, Sir Frederick Hobday, Dr. Montgomerie, Mr. Savage, Professor Share Jones and Mr. W. Jones.

Correspondence.—(1) From the Victoria Veterinary Benevolent Fund acknowledging receipt of the Society's donation for 1933 and its collection at the last meeting.

(2) From the General Secretary, N.V.M.A. regarding (*a*) the charges made for anti-distemper inoculations. It was agreed that the Secretary send a suitable reply incorporating the views of the members.

(*b*) The fee to be paid by the R.S.P.C.A. for first-aid to dogs and cats in accident cases.

(*c*) The insertion of advertisements intended to counter the activities of unqualified persons. A discussion on this subject followed and members agreed to endeavour to secure definite evidence of certain forms of quackery existing in the area.

(3) From Mr. Wynn Lloyd requesting the withdrawal of his resignation from the Society. On the proposition of Mr. Llewelyn Jones seconded by Mr. Cartwright, it was agreed that Mr. Lloyd's withdrawal be accepted and that he be nominated for Fellowship.

Election of Fellow.—Mr. T. W. Woodhead, having been nominated by Mr. Wynne and seconded by Mr. Cane at the previous meeting, was elected a Fellow.

Treasurer's Statement.—The Treasurer (Mr. C. W. Cartwright) then read his statement regarding the finances of the Society, showing that these were in a very satisfactory condition. The President expressed his appreciation of Mr. Cartwright's efforts in this connection.

Election of Officers

It was agreed that the officers of the Society be re-elected *en bloc*. The place of the late Mr. Booth on the Council was taken by his son, Mr. F. Booth, the President remarking that Mr. Booth's appointment was a fitting tribute to the memory of his respected father.

The officers for 1933-34 are:—

President.—Mr. R. L. Lewis.

Vice-Presidents.—Mr. H. Llewelyn Jones and Mr. W. H. Savage.

Hon. Treasurer.—Mr. C. W. Cartwright.

Hon. Secretary.—Mr. H. V. Hughes.

Other Members of Council.—Mr. G. J. Roberts and Mr. F. Booth.

Auditors.—Dr. R. F. Montgomerie and Mr. W. H. Savage.

Paper.—The President now said they had next to come to the most important business of the meeting, *viz.*, the paper by Mr. Leonard Jones on "Acorn Poisoning." He was grateful to Mr. Jones for kindly consenting to give them a paper of clinical interest that day and he was sure they would go away benefited after hearing Mr. Jones.

Mr. Jones, who was applauded on rising to speak, said he was highly honoured in being invited to address the meeting that day. He hoped that his paper, if it did nothing else, would prove to be a source of discussion amongst them that afternoon.

[Mr. Jones' paper is reproduced, together with a report of the discussion which ensued, at the commencement of this issue.—Ed. *V.R.*]

Vote of Thanks.—The President, proposing a vote of thanks to Mr. Jones, said he was sure they were all indebted to him for his very able contribution. If they had not agreed on the cause of the disease, they were certainly better informed as to its nature and the discussion had proved the interest of the members in the subject.

Mr. Wynne, seconding, asked that the paper, and the discussion, be forwarded for publication as an interesting piece of original work. He looked forward to the results of the experiment which Mr. Jones promised to carry out.

Mr. Jones briefly acknowledged the vote of thanks.

Practitioners' League.—The President called the attention of those members who were practitioners to the newly-formed Practitioners' League. He was given to understand that the enrolment was very satisfactory and he urged all who could to make every effort to attend the General Meeting which was to be held at an early date.

Next Meeting.—It was agreed that the next meeting of the Division be held at Chester.

This terminated the meeting, and the members were later kindly entertained to tea by the President. Messrs. Cane and Wynne, on behalf of the members, warmly thanked Mr. Lewis.

H. V. Hughes, *Hon. Secretary.*

* Received for publication, March 1st.

EASTERN COUNTIES V.M.A.

ANNUAL MEETING AT NORWICH*

The Fifty-eighth Annual General Meeting of the Eastern Counties V.M.A. was held at the Royal Hotel, Norwich, on Friday, February 9th.

The retiring President (Captain W. Waters) was in the chair, and the following members also signed the attendance book: Messrs. A. J. Beeson, T. E. Barcham, T. J. Bosworth, V. Boyle, J. L. Buckingham, J. M. Currie, W. H. Dennett, J. E. Gallie, R. E. Glover, S. E. Hill, F. Hogg, W. F. Howes, D. S. Jack, W. F. Loveless, H. V. Low, G. T. Matthews, C. C. Nesling, N. F. Pollock, E. Brayley Reynolds, J. Reid, W. Shipley, H. P. Standley, Senr., J. F. Thurston, P. R. Turner, W. K. Townson, H. G. Swann, P. Welch, W. H. Wortley and the Hon. Secretary.

Messrs. N. Dobson, J. E. Saunders and T. F. Tunney were present as visitors.

The minutes of the Summer and Autumn Meetings, as already published in *The Veterinary Record*, were taken as read and signed.

Correspondence.—(1) From the Royal Sanitary Institute, inviting delegates to their Congress at Bristol from July 9th to 14th. It was agreed that the in-coming President (P. J. Welch, Esq.), or his nominee, should attend.

(2) From the Secretary of the Royal Institute of Public Health, calling attention to the Annual Congress which is to be held in Norwich from May 15th to 20th, at which, for the first time, a section is being devoted solely to "Veterinary Medicine and Agriculture." The letter stated that as many veterinary surgeons as could attend would be welcomed on payment of the customary membership fee of one guinea. Mr. H. V. Low was appointed as a delegate from the Association.

(3) From the Victoria Veterinary Benevolent Fund, thanking the Association for its annual subscription of £5.

(4) From Mr. Pollock, setting forth a scheme for the formation of a panel of *locum tenens*. After considerable discussion it was decided that the matter be deferred to the next meeting.

(5) From the N.V.M.A., with regard to Advisory Officers. It was agreed that the position was satisfactory in so far as this district was concerned.

(6) From the N.V.M.A., dealing with immunisation against canine distemper, asking for particulars of fees in this area. After considerable discussion a reply was drawn up.

(7) From the National Association, calling attention to the forthcoming International Veterinary Congress at New York, and the fund which is being raised to help in meeting the expenses of those from this country who would be willing to attend, but would otherwise be prevented from going on the score of cost. It was decided that a donation of £10 10s. be sent from the Society's fund.

(8) Apologies regretting their inability to attend the meeting were received from Sir F. Hobday, Messrs. A. Burgon, E. H. Burgon, H. Downe, Major F. Gooch, Captain C. Townson, J. Cochran Dyet, H. Buckingham, W. J. Browning and H. J. Loveless.

Report of Delegates to Council, N.V.M.A.—The Secretary then read a report from Messrs. G. T. Matthews and H. P. Standley, Senr., the Society's representatives on the Council of the N.V.M.A.

The President: "It is a very instructive report, and it is evident that our delegates have done their work well. I would like to take this opportunity of expressing our warmest thanks to Mr. Matthews and Mr. Standley for their services." (Applause.)

Elections.—Messrs. J. G. E. Gallie and H. G. Swann were elected members of the Association.

Accounts.—The balance sheet for 1933 was then presented. The President said that every member had received a copy, and he proposed its acceptance. Mr. Matthews seconded, and this was carried.

Donation.—It was agreed to send the usual donation of £5 to the Royal Agricultural Benevolent Institution.

Election of Officers for 1934.

The President proposed the election of Mr. Percy Welch, of Saffron Walden, as his successor in that office for 1934, saying: "Although Mr. Welch lives on the extreme edge of the district which our Association covers, and he is further from Norwich perhaps than any other member, he is a very active member, and it is very rarely indeed that he fails to pay us a visit."

Mr. W. Shipley seconded, remarking that it gave him great satisfaction to support Mr. Welch's election. The proposal was carried unanimously. Mr. Welch then took Mr. Waters' place in the chair, amidst applause, and briefly expressed his thanks to the meeting.

Vice-Presidents.—Messrs. H. P. Standley, Senr., G. T. Matthews and Captain W. Waters.

Committee.—Messrs. V. Boyle, W. H. Wortley, P. R. Turner, W. Shipley, W. H. Dennett, W. J. Browning, E. B. Reynolds, T. G. Heatley and W. A. Wood.

Auditors.—Messrs. H. Buckingham and T. E. Barcham.

Hon. Secretary.—Mr. Harry P. Standley, Junr.

Representatives on the N.V.M.A. Council.—Messrs. G. T. Matthews and H. P. Standley, Senr.

* Received for publication, March 2nd.

Next Meeting.—It was agreed that the Summer Meeting should be held at Great Yarmouth, Thursday, July 5th, was suggested as the date.

Paper and Demonstration.—Mr. N. Dobson, B.Sc., M.R.C.V.S., Research Officer, Ministry of Agriculture and Fisheries, then read a paper on "Some Poultry Diseases," after which he gave a very instructive lantern demonstration illustrating bacillary white diarrhœa, roup, tuberculosis, black head and Newcastle disease. [Mr. Dobson's paper, and a report of the discussion which followed its presentation are reproduced earlier in this issue.—Ed., *V.R.*]

Votes of Thanks.—At the conclusion of the discussion, the meeting expressed thanks to Mr. Dobson for coming down and treating them to such an interesting address and demonstration. The President also voiced warm thanks to Captain Waters for his services as President during 1933. After the meeting members were entertained to tea by their newly-elected President.

H. P. Standley, *Hon. Secretary.*

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SOUTH-EASTERN V.M.A.*

SHEEP DISEASES DISCUSSED AT TUNBRIDGE WELLS

The Autumn Meeting of the South-Eastern Veterinary Medical Association was held at the house of Mr. C. Roberts, M.R.C.V.S., 8, Church Street, Tunbridge Wells, on November 22nd, 1933. The President (Mr. A. Spicer, F.R.C.V.S.) occupied the chair, and there were present the following Fellows: Messrs. H. Taylor, C. Roberts, R. V. Isherwood, J. T. Turney, L. Hughes, E. Morgan, J. G. Cattell, J. B. Dier, H. P. Hogben, F. Marks, H. S. Head, F. B. O. Taylor, A. T. Crowther, A. Eccles, T. F. Hogben and T. Dalling (Hon. Secretary).

The following visitors also signed the attendance book: Messrs. Ll. E. W. Bevan, N. Dobson, W. S. Gordon, D. Johnston, G. S. Peyton, G. F. Pickering, J. B. Polding and R. S. Roberts.

The business part of the meeting consisted of the following items:—

(*a*) Correspondence. — (1) From Sir F. Hobday, Major G. W. Dunkin, Major L. P. Pugh, Professor J. B. Buxton, Major J. I. Edgar, Mr. A. Whicher and Mr. J. W. Pritchard, apologising for absence.

(2) From Mr. C. W. Perrin, M.R.C.V.S., Folkestone, who intimated his desire to resign his membership. It was agreed that Mr. H. P. Hogben should endeavour to persuade Mr. Perrin to reconsider his decision.

(3) From the General Secretary, N.V.M.A., in connection with advertisements in which unqualified persons offer to treat sick animals. Attention was drawn to the policy of the N.V.M.A. of publishing counter-advertisements in newspapers circulating in the districts concerned.

(4) From the General Secretary, N.V.M.A., in connection with fees charged for the immunisation of dogs against distemper. The Council of the Division had discussed these letters prior to the meeting and advised the meeting of its recommendations.

(5) From the General Secretary, N.V.M.A., relating to a letter received from the Chief Secretary R.S.P.C.A., regarding fees to be paid to members of the profession for first-aid treatment to dogs and cats injured by motor-cars. After discussion it was agreed to accept the proposed fees.

(6) From the Secretary of the Victoria Veterinary Benevolent Fund, acknowledging the receipt of £8, the amount collected by the Association at its Summer Meeting, and the annual donation of £3 3s., with a special contribution of £5 5s.

(7) From Mr. C. Rose, M.R.C.V.S., Tonbridge, thanking the Association for the honour conferred on him by making him an Honorary Member.

(8) From Sir Frederick Hobday, thanking the Association for its congratulations on his being Knighted.

(*b*) Nomination of Officers for the Ensuing Year.—The Council had discussed this subject and recommended to the meeting that the following be nominated. Elections will take place at the next meeting.

President.—Mr. A. Spicer.

Vice-Presidents.—Those now serving with, in addition, Mr. J. G. Cattell.

Hon. Secretary and Treasurer.—Mr. T. Dalling.

(*c*) Election.—Mr. D. Johnston, M.R.C.V.S., D.V.S M., was unanimously elected a Fellow of the Association.

(*d*) Nomination. — Mr. G. F. Pickering, M.R.C.V.S. (Battle), was proposed by Mr. H. Taylor and seconded by Mr. C. Roberts for election as a Fellow of the Association.

(*e*) Next Meeting and Annual Dinner.—It was agreed that the next meeting be held in London, and that it be followed by the Annual Dinner. To make the necessary arrangements for the dinner a committee consisting of Mr. Hodgman and Mr. Dalling was appointed.

Paper.—The President now called on Mr. W. S. Gordon (Edinburgh) to read his paper on Sheep Diseases. In introducing the speaker, the President said that they were much honoured by having Mr. Gordon with them, and by his addressing them on that important subject, on which he had carried out much research work. The President also referred to Mr. Gordon's past connection with the Association, pointing out how the Association had prospered while Mr. Gordon was the Hon. Secretary.

* Received for publication, March 7th.

Mr. Gordon then read his paper, which was on lines very similar to that read by him at a meeting of the Scottish Metropolitan Division of the N.V.M.A., and published in *The Veterinary Record*, on January 6th, 1934. Readers are referred to that issue of *The Veterinary Record* for details of the paper.

Discussion on Mr. Gordon's Paper on Sheep Diseases

The discussion was opened by Mr. T. Dalling, in the following terms:—

"I had hoped that Mr. McEwen would have been here to-day, when I would have asked him to open the discussion, as he has done a considerable amount of work on diseases of sheep in the Romney Marsh district. The task of opening the discussion, therefore, falls to my lot.

"I want to congratulate Mr. Gordon on the excellent paper he has presented to us to-day. I admire his work more than I can say, especially his researches into louping-ill and that newly-described disease—tick-borne fever of sheep—conditions which have baffled investigators for many years. His name will live in the records of Veterinary Science for his work.

"Veterinary surgeons, as a whole, do not, in my opinion, pay sufficient attention to the diseases of sheep. It has been a difficult task to get them interested, but times are changing. Because of the results of research work, sheep farmers are beginning to demand that their veterinary surgeons deal with the various troubles among their flocks. During the past year I had the privilege of addressing two meetings of sheep farmers on the subject of disease. One meeting was in Derby, during the Royal Agricultural Show, and the address was given under the auspices of the National Sheep Breeders' Association. It gave me great joy to hear one of the officials of that Association, in the course of his remarks on my address, say that when things went wrong with his sheep he sent for his veterinary surgeon—a procedure he would not have adopted some years ago.' I think you will agree with me that such a statement coming from such an important body is very encouraging. (Hear, hear.)

"The same general apathy has been shown by veterinary practitioners in the control of poultry diseases. I have found it most difficult to get them to become interested—but that is another story. I would appeal at this point to practitioners to become interested in the various diseases of all types of animals, for I do feel that the animal-keeping public have a right to expect us, as veterinary surgeons, to be acquainted with all their disease problems and to be in a position to advise them on the best and latest methods of control.

"In connection with sheep diseases, quite an amount of work is going on in the country, and the progress being made is considerable. I need only mention, in addition to the diseases dealt with by Mr. Gordon, the investigation into fluke disease and the use of carbon tetrachloride in its control to show how research is resulting in the elaboration of efficient methods of disease control.

"Mr. Gordon spoke about lamb dysentery and braxy." Braxy does not exist to any great extent down here, but lamb dysentery does and is gradually spreading to new districts. It therefore behoves veterinary surgeons to know that methods of control are available.

"Sheep are very subject to infections with anærobes, not only in this country, but in most parts of the world. It has been shown that practically all the pathogenic anærobes find in the sheep a suitable host, and in different countries, indeed in different parts of the same country, different members of the anærobe group invade the tissues of the sheep and cause various types of disease processes. I think we can safely claim that the investigation into the behaviour of anærobes in the sheep forms a study of material value in the general study of anærobes and may greatly assist those researching into similar problems in the human being. The veterinary profession can greatly assist the medical profession in such work, for we can fairly rapidly get results in animals such as sheep in connection with which it is possible to carry out experiments on any number, *e.g.*, Mr. Gordon refers to experiments embracing 20,000 to 50,000 sheep.

"Mr. Gordon also mentions his work on grass disease in horses. Practically all routes of investigation have been explored by the various workers. I think that Mr. Gordon is on the right lines with his examination of the contents of the intestine, and I feel that he may find, when he has had the opportunity to do further work on the same lines, that the various toxins elaborated in the intestine play a very important part in the disease. In connection with the diseases accruing from the presence of specific toxins in the intestine we have, as excellent examples, lamb dysentery and pulpy kidney—the latter disease has just been shown by Montgomerie to have its origin in the intestine.

"The standardisation of veterinary products formed part of Mr. Gordon's subject. The example of a serum having no protective value was of great interest. There is no rule or regulation which necessitates the standardisation of veterinary biological products. The medical people have the Therapeutic Substances Act behind them. It is very necessary that some scheme for the standardisation of our products should be in operation, otherwise we do not know where we stand. Some of us responsible for the production of such biological substances do carry out exact methods of

standardisation, but the various methods are not in common use; in fact, in some cases there would appear to be no method at all. The ideal method to standardise a product is in the animal in which it is to be used. In South Africa, standardisation of products for use in sheep is carried out in sheep because they are cheap and plentiful. In this country one has to make use of other animals, though final tests are generally carried out in the animal concerned.

"I hope that Mr. Gordon has interested you sufficiently to show you that it is your duty to know more about sheep diseases than perhaps you know at the moment. His address has certainly shown us that he is an enthusiast on his subject." (Applause.)

Mr. Ll. E. W. Bevan (S. Rhodesia) continued the discussion and began his remarks as follows: "It is really presumption on my part to speak, as I am only a visitor, but I would like to say that I have been profoundly interested in the paper presented to us, and I think it stands greatly to the credit of the Association that it has been able to obtain the services of Mr. Gordon. Mr. Gordon is a pioneer in the thorny path of research. He is fortunate in having studied and worked with a master of research—Major Dalling—who is not only a master of technique, but has also the great gift of originality in his work." Mr. Bevan then referred to the scarcity of sheep in Southern Rhodesia. He said that their non-existence was partly due to the heavy disease incidence. The diseases affecting sheep in that country were, he said, but imperfectly understood. It was necessary for food purposes to import into Rhodesia some 50,000 to 60,000 sheep annually from South Africa. Mr. Bevan felt that with the knowledge now being acquired from sheep disease investigation it was very possible that the diseases in his country would soon be better recognised and understood.

Reference had been made to tick-borne diseases in Rhodesia and the methods of control in which dipping in arsenical solutions was adopted were described. Such dipping was compulsory, and in some districts the regulations compelled stock owners to dip their animals every three days over a period, for in a disease like East Coast fever longer interval dipping would not catch the tick. Further, in this disease it seemed that, as in louping-ill, infection did not pass through the egg of the tick.

Mr. Bevan wondered if grass disease was in any way similar to South African horse sickness. He seemed to see some resemblance between the two.

Mr. D. Johnston described an outbreak of disease among sheep which he had seen recently. The chief symptoms were œdema of the upper and lower eyelids. A few cases showed pustules in the nostrils. Some seemed to suffer from opacity of the cornea before the œdema began. The disease took about a month to clear up and yielded to simple treatment. Mr. Johnston wondered if Mr. Gordon recognised the condition.

Mr. R. S. Roberts said that at Wye they had been in fairly close touch with diseases of sheep in Kent, mainly on the Romney Marsh. The chief disease which affected sheep there was "struck." When they first went to make investigations every farmer spoke about "struck" and they really thought that they were up against a serious problem; experienced farmers and shepherds thought that the disease was very serious. During that season they isolated the causal organism and by the next season were in a position to try out preventive inoculation. When they came to analyse the results at the end of the year they found that season that the mortality was exceedingly low. The same occurred again the following year—there were very few deaths. After that they tried to find out something about the mortality and discovered that there was a high mortality in 1930 and that previous to that year there had been heavy losses in 1919-20. Evidently there was a seasonal mortality. Mr. Roberts would like to know if such a seasonal mortality was found in Scotland.

Referring to other diseases, Mr. Roberts mentioned gas gangrene and a disease which did not seem to be associated with enteritis or the presence of a toxin in the intestine.

Mr. G. F. Pickering said that he was a visitor, but would like to say a few words. He referred to the work of Professor Buxton, and that of Mr. Lyle Stewart in Northumberland, where it was shown that diseases of sheep were seasonal. He was anxious to know if Mr. Gordon could give them some indication of the percentage loss among sheep from the diseases he had discussed.

Mr. A. Spicer and Mr. A. T. Crowther desired more information on pulpy kidney disease.

Mr. H. Taylor referred to the existence of scrapie in sheep in Sussex.

The Reply

In reply, Mr. Gordon said that, first of all, he would like to thank those present for the kind way in which they had received his paper and for the good discussion which had taken place. He appreciated very much the way in which Mr. Dalling had brought to the notice of the meeting the importance of veterinary practitioners knowing more about the diseases of sheep.

He was particularly interested in what Mr. Bevan said in connection with the control of ticks in Rhodesia and described an experiment carried out in Scotland. A ten-acre field was

fenced with double fencing. Sheep were put into the enclosure in the spring and were dipped every three days during the spring. This was found to reduce the number of ticks but did not get rid of them entirely. This method of dipping meant an enormous amount of work and consequently was impractical. This enclosure was left for a season and then sheep were again introduced. It was found that 4·5 ticks were collected per sheep, whereas from the sheep immediately outside the enclosure the number was 45 per sheep.

The disease mentioned by Mr. Johnston was then referred to. Mr. Gordon said they had seen opacity of the cornea in sheep in Scotland, and they wondered if they had an ophthalmia to deal with. They had seen another type of disease in which large abscesses occurred in the nostril. This was not contagious pustular dermatitis which was due to a filterable virus and produced pustules on the face and eyelids, and, though a benign condition, caused much inconvenience, specially at the time of lambing.

In reply to Mr. Roberts in connection with the seasonal occurrence of disease, Mr. Gordon showed that both braxy and lamb dysentery come into this category. In the setting up of field experiments it was essential to have large experiments, especially where seasonal variation occurs.

Regarding pulpy kidney disease, Mr. Gordon could not say very much, for though he would not like to say it did not exist in Scotland, he had had no actual experience of its occurrence. He referred to Bennetts' work on this disease in Australia.

Mr. Gordon expressed great interest in the finding of scrapie in Sussex. He referred to the occurrence in Kent, and remarked that Mr. Taylor's observation was the first record of its appearance in Sussex. Apparently some of the sheep which were sent down from Scotland had developed scrapie on their arrival.

In connection with the percentage death rate of sheep in Scotland and Northumberland, Mr. Gordon said that they would hardly believe him if he told them how many could die in the various outbreaks. In Argyll, for instance, it was by no means uncommon to have losses up to 25 per cent.

Mr. Gordon concluded his remarks by thanking the Association once more for the opportunity afforded him of being present and giving his paper.

Votes of Thanks.—A vote of thanks to Mr. Gordon was proposed by Mr. H. P. Hogben and seconded by Mr. C. Roberts. Both spoke very highly of the pleasure all had in having him with them and on the valuable contribution he had made to our knowledge on sheep diseases.

The meeting then closed.

Mr. and Mrs. C. Roberts entertained the Fellows and visitors to tea. In a few well-chosen words Mr. J. B. Dier thanked our host and hostess for once again being so good to us in allowing us the use of their house for our meeting and for their hospitality.

T. Dalling, *Hon. Secretary.*

In Parliament

The following questions and answers have been recorded in the House of Commons recently:—

National Stud

Mr. Anstruther-Gray asked the Minister of Agriculture the number of stallions standing at the National Stud at Tully, County Kildare; how many outside mares they have served; and the total fees collected for 1932 and 1933 respectively?

Mr. Elliot: Two stallions stood at the National Stud in 1932 and 1933; two mares were served in 1932, and 18 in 1933, and the fees earned were £47 5s. and £714, respectively.

Mr. Anstruther-Gray: In view of the unsatisfactory state of affairs disclosed by these figures, will the Minister consider the desirability of bringing the National Stud to this country, either in whole or in part?

Mr. Elliot: Not only have I considered that point, but I answered a question on it a few days ago.

Captain Heilgers: Will my right hon. Friend consider bringing it to Newmarket, which is the national home of racing?

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Slaughter-Houses (Licences, Farmers)

Lieut.-Colonel Spender-Clay asked the Minister of Health whether there is any restriction upon the issue of slaughter-house licences to farmers who desire to market their produce direct to consumers, provided their premises and appliances comply with the requirements of the law?

Sir H. Young: The licensing of slaughterhouses is a matter within the discretion of the local authority, and there is no statutory restriction upon the issue of licences to farmers, provided that the conditions are regarded as satisfactory.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

April 1st.—Annual Fees payable to R.C.V.S.
April 4th.—R.C.V.S. Committee Meetings.
April 5th.—R.C.V.S. Committee Meetings.
7 p.m.—**Annual Dinner** at Mayfair Hotel, Berkeley Square.
April 6th.—R.C.V.S. Committee and **Council** Meetings.
April 9th.—Meeting of the Organising Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1., at 2 p.m.

April 10th.—N.V.M.A. Committee Meetings at 2, Verulam Buildings, Gray's Inn, W.C.1.: Appointments, 10 a.m.; Veterinary Officers' and Public Health, 11 a.m.; Parliamentary, 11.45 a.m.
N.V.M.A. Council: Meeting at Conway Hall, Red Lion Square, W.C.1., 2.30 p.m.

April 16th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

May 10th.—Last day for nominations, R.C.V.S. Council Election.

May 24th.—Voting papers issued, R.C.V.S. Council Election.

May 31st.—R.C.V.S. Council Election, voting papers to be returned.

June 7th.—**R.C.V.S. Annual General Meeting.**

July 30th-Aug. 3rd, 1934.—National Veterinary Medical Association Congress, Edinburgh.

Aug. 13th-18th, 1934.—Twelfth International Veterinary Congress, New York.

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OBITUARY

Dame Anna Lady Simpson

We regret to record the death, in her ninety-second year, of Dame Anna, widow of Sir Henry Simpson (late of Windsor), which took place at Newbury, on March 17th. Anna Lady Simpson married Sir Henry L. Simpson, Veterinary Surgeon to Queen Victoria and sometime Mayor of Windsor, in 1865, and had been a widow since 1900. She was the daughter of the late Charles Ellis, and leaves a son who embraced the veterinary profession, in Major Henry George Simpson, F.R.C.V.S., to whom we extend our deep sympathy in his bereavement. Dame Anna's association with the profession extended yet further, however, as she had in Lieut.-Colonel P. J. Simpson, D.S.O., T.D., J.P., F.R.C.V.S., a nephew who is the Immediate Past-President of the National Veterinary Medical Association.

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R.C.V.S. OBITUARY

Boyd, John McKeague, Linenhall Street, Ballymoney, Co. Antrim. Graduated Edinburgh, December 18th, 1925. Died October 23rd, 1933.

Mr. Boyd, who had recently been appointed to the staff of the Ministry of Agriculture, Northern Ireland, fell ill March of last year and passed away after a lingering illness.

Lloyd, Peter, Strathmore House, Maidenhead, Berks. Graduated London, December 14th, 1897. Died March 24th, 1934; aged 56 years.

Pottie, John Donaldson, 46, Brisbane Street, Greenock, Renfrew. Graduated Edinburgh January 5th, 1888. Died March 22nd, 1934; aged 66 years.

The Late Mr. J. Donaldson Pottie

Mr. Donaldson Pottie, whose death we record with much regret, was until recently a frequent contributor to the clinical and correspondence columns of *The Veterinary Record.*

Mr. Pottie, who was one of the best-known practitioners in the West of Scotland, was born in Renfrew. After qualifying at Edinburgh, he settled in Greenock, where he was appointed Veterinary Inspector for the Burgh.

His family has been closely connected with veterinary work for several generations, his father, uncle and grandfathers being members of the profession. His son is carrying on the family tradition as a veterinary surgeon in Paisley.

Mr. Pottie's activities in the study of the treatment of milk fever in cows, and grass sickness in horses, are well known in Scottish agricultural circles.

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DIPLOMA IN TROPICAL VETERINARY MEDICINE

The following have passed in Part II of the Examination for the Diploma in Tropical Veterinary Medicine granted by the University of Edinburgh: William Percival Sheridan Edwards, M.R.C.V.S., D.V.S.M.; Desraj Masson, B.Sc., M.R.C.V.S.; Krishan Prasad Nair, M.R.C.V.S.

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UNIVERSITY OF LIVERPOOL EXAMINATION LIST

The March, 1934, Examination List of the University of Liverpool contains the name of Miss Kathleen M. Massey as having passed Parts I and II of the Second Examination for the Degree of B.V.Sc. (Liv.) from the School of Veterinary Science.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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REACTIONS TO THE DOUBLE INTRADERMAL TUBERCULIN TEST

To the Editor of The Veterinary Record

Sir,—Do we get reactions to the above test other than those due to tuberculosis? In my opinion, the correct answer to that question is "yes."

In a tuberculin-tested herd, which has had no reactors for several years, two interesting cases have recently occurred.

The first case was that of a calved heifer which began to waste and had intermittent periods of scouring; the second, a calved five-year-old cow showing similar symptoms and with a capricious appetite.

Both these animals were submitted to the tuberculin test during their respective periods of illness, and both gave positive reactions. On

careful *post-mortem* examination of both carcasses typical Johne's disease was found, but no trace of tuberculosis.

The tuberculin used was that of the Institute of Animal Pathology, Cambridge.

Yours faithfully,

R. M. Smith.

8, Wallace Street,
Galston, Ayrshire.
March 24th, 1934.

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TORSION OF THE PREGNANT UTERUS IN THE COW

To the Editor of The Veterinary Record

Sir,—Before reading Mr. Cumming's remarks in *The Veterinary Record* of March 17th, I had not thought it possible to effect manual rotation of the full-term calf *in utero*. The method, as described by him, seems to call for a certain strength and ingenuity in the operator.

My experience is that where it is at all possible to force one's hand along the twisted vagina and so to reach the fœtus, a cord should at once be attached and delivery effected in the ordinary way, without troubling to correct the deviation in the uterus. The twist seems to unfold itself and the surrounding parts expand naturally for the exit of the calf. Rolling, of course, must be carried out in those cases where the hand cannot reach the fœtus, but only then.

Chloral hydrate (ʒiss-ʒii) might be of use in relieving muscular tension in cases of uterine twist. It acts very well in those cases of rigid *os uteri* where the calf is at full term, but one must wait an hour or two for good results. I have seen no harmful results to the calf if given in moderate doses.

Yours faithfully,

T. J. Maguire, M.R.C.V.S.

90, Romford Road,
E. 15.

BOVINE STERILITY

To the Editor of The Veterinary Record

Sir,—In the paper (published in your issue of January 6th last) which he read before the Eastern Counties Division of the N.V.M.A., at Bury St. Edmunds, in October, 1933, Mr. J. R. Barker, in referring to my communications on the use of "Prolan" in cases of delayed œstrus, stated that repeated injections might result in the complete luteinisation of the ovary. Such has not been my experience, and in a private communication I advised him to this effect, but in order to obtain definite information on the matter—one must not be too dogmatic or parochial—I communicated with the distributors (Bayer Products, Ltd.), and have now been informed by them that this fear is quite unfounded. They point out that the therapeutic dose recommended is so small that any injurious effect is out of the question—even if numerous repeated injections are given. Luteinisation could only occur after a very large overdose. In humans at least 1,000 rat units would have to be injected, and for large animals the dose is usually five to ten times greater. Any danger for the cattle is, therefore, absolutely out of the question.

Yours faithfully,

J. F. D. Tutt, F.R.C.V.S.

Winchester.
March 23rd, 1934.

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from the Misses E. A. R. Burnett (Calderbridge), Aleen Cust (Lyndhurst), K. M. Hernaman-Johnson (Sutton), M. Oyler (Cheshunt), M. Stewart (London) and Olga B. Woodward (Burton-on-Trent), Dr. T. W. M. Cameron (Montreal), Mr. E. P. Edwards (Mold) and Mr. J. D. Peele (Durham).

Diseases of Animals Acts.

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th March, 1934	16	16	—	—	6	8	15	72	50
Corresponding period in									
1933	14	16	7	456	12	22	21	56	26
1932	17	23	—	—	9	18	6	97	59
1931	39	40	2	214	15	24	15	56	12
Total 1st January to 15th March, 1934	101	101	—	—	61	97	260	363	193
Corresponding period in									
1933	91	110	47	4,508	62	118	167	197	68
1932	95	124	1	67	58	104	95	449	193
1931	120	130	5	515	51	88	130	265	97

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.

MISS ALEEN CUST, M.R.C.V.S.

The First Woman Veterinary Surgeon.